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**Study of Applicants
For Admission to the 1936 Freshman Class in Seventy-nine
Medical Schools in the United States**

FRED C. ZAPFFE

Secretary, Association of American Medical Colleges
Chicago, Illinois

A study of applicants for admission to medical schools in the United States was undertaken by the Association of American Medical Colleges in 1926 under a grant made by the Commission on Medical Education. It was continued for four years. The study was not made in 1930 nor in 1931. It was resumed in 1932 and has been continued since then as an activity of this Association.

This study was begun to ascertain how many applicants there are each year; how many applications they make; how many are accepted; how many are rejected and the reasons for rejection; what is the preparation for study; how many hold a bachelor's degree; how many were dropped by one or more medical schools and seek admission elsewhere. The accumulation of these data has furnished much information of value in one way or another and serves also as a check on the attempts made by certain students, year after year, to gain admission until they finally desist and go abroad to study.

It has often been said that more applicants would be accepted if they could be accommodated, i.e., if physical plants, teaching facilities and available teaching material (clinical) would permit. Curiously enough, that is not true. Each year more applicants are accepted than enroll for the course. In 1933, for example, 11.7 per cent of those accepted did not enroll. In 1936, 8.7 per cent failed to enroll or matriculate. Then, too, the charge has been made that applicants in the lower brackets of preparation for the study of medicine are discriminated against; that holders of a bachelor's degree are given preference. That, too, is not true (Table 3). The data herewith presented refute these charges and give the real picture of what actually happens.

Why do applicants not enroll when accepted? Any one of several reasons may be operative. A "change of mind," for instance, at the last moment, or the possibility of taking advantage of what seems to be a better opportunity may be a reason for not matriculating. Others may be not being able to finance himself; deciding to remain in college longer in order to take additional courses or to earn a degree. Some of these applicants enroll later—next year or even the year thereafter, but many remain definitely out of the picture. Perhaps, some one has persuaded them that the practice of medicine is not the pleasurable road

to wealth it often is said to be. Then, too, business is on the upgrade, which always finds reflection in the enrolment in professional schools, especially medicine. When business is not so good, the enrolment increases, and vice versa. Thus, in 1932, 1933 and 1934, the attendance in medical schools reached the peak; in 1935 it began to fall off, and in 1936 it is still lower than in 1935.

It is possible that the drop in enrolment may be due to more careful selection or better means of selection of students. At any rate, despite the increase in the number of applicants in 1933, 1934 and 1935 (there was a slight decrease in 1936), the number of acceptances has steadily grown smaller. The entrance requirements of the medical school have been raised from two to three years of college work in a few schools but not in enough to account for the falling off in acceptances. Doubtless, better selection is the reason for the change. In 1936, for instance, 14.3 per cent fewer applicants were accepted by the same medical schools than in 1933.

Another figure of interest is the actual number of freshmen year after year as reported on by the same medical colleges included in this study as having remained in college a sufficient length of time to be reported on at the end of the year as having been members of the class. This figure always is smaller than either the number accepted or the number enrolling for the year's work. As

TABLE 1. SUMMARY OF TOTALS OF APPLICANTS AND APPLICATIONS AND THEIR DISPOSITION, 1933, 1934, 1935 AND 1936.

	1933	1934	1935	1936
No. of applications.....	29,705	32,321	34,427	35,439
Applications accepted..	9,123	8,854	8,300	7,749
No. of applicants.....	12,128	12,779	12,740	12,192
Single applicants.....	7,269	7,623	7,231	6,657
Accepted	4,434 (60.9%)	4,433 (58.1%)	3,980 (55.4%)	3,538 (53.1%)
Rejected	2,835	3,190	3,251	3,119
Multiple applicants.....	4,859	5,156	5,509	5,535
Accepted	3,109 (63.1%)	2,986 (57.9%)	2,920 (53.0%)	2,927 (52.8%)
Rejected	1,750	2,170	2,589	2,608
Total Applicants acc....	7,543 (62.1%)	7,419 (57.9%)	6,900 (54.1%)	6,465 (53.0%)
Total Applicants rej....	4,585 (37.9%)	5,360 (42.1%)	5,840 (45.9%)	5,727 (47.0%)

stated above, all accepted applicants do not enroll or matriculate. And all those who matriculate do not remain in medical school to be included in the class roll. Quite a few students drop out within a few days or a week after entrance for one reason or other. So, we find that in 1934, for instance, 7,419 applicants were accepted but only 6,650 were reported on at the end of the year. In 1936, 6,465 applicants were accepted, but only 5,906 enrolled. Of these, many will drop out early in the course, so that it is probable that not more than 5,750 will be reported on at the end of the year.

Another significant fact is that of those who begin the study of medicine, from 23 to 25 per cent will not graduate; about 15 per cent fail of promotion to the sophomore year; about 5 or 6 per cent fail of promotion to the junior year and about 3 per cent fail by the end of the senior year, as studies made by this Association have shown.

Table 1 presents a summary for the past four years on applicants and applications as to numbers and fate. The number of applications has increased by nearly 6,000 since 1933; the number of applicants increased in 1934 and 1935, but fell off about 5 per cent in 1936 from the previous year but is not yet down to the 1933 level. The number of single applicants (making only one application) has steadily diminished since 1933, whereas the number of those making more than one application has increased. Evidently, the desire to make certain of acceptance has grown greater, whereas the hope that one application, made to the college of choice, will be accepted is more or less a forlorn one. The percentages of acceptances in both groups would seem to show that the multiples are having more trouble in securing acceptance than do the singles. In 1933, 60.9 per cent of single applicants were accepted; in 1936, only 53.1 per cent were accepted, a falling off of 7.8 per cent. In 1933, 63.1 per cent of the multiple applicants were accepted as against 52.8 per cent in 1936, a falling off of 8.3 per cent. These same differences are shown in the total acceptances, 62.1 per cent in 1933 and 53.0 per cent in 1936, a falling off of 9.1 per cent.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

APPLICANT FOR FRESHMAN MATRICULATION 1937-1938

School of Medicine.....

Name of Applicant.....

Address of Applicant.....

(Street and No.) (City and State)

I. 1. Accepted. Enrolling for first time.
 2. Accepted. Repeating freshman year.
 3. Refused because class full (credentials acceptable).
 4. Refused because credentials inadequate quantitatively.
 5. Refused because of poor scholarship or personality.
 6. Refused because of unsatisfactory work at another medical school.

II. No action taken.

III. Premedical Preparation:
 1. If a graduate, state degree..... Year granted.....
 2. If not a graduate, state years or hours of college work.....
 Please check classification given.

From these figures it must be assumed that selection is being made with greater care or that more aids to selection are being used. Many tests are now being used in selection. Doubtless, they all are aids to better selection.

Table 2 presents the data by colleges on the total number of applications made by individuals and the action taken. Both men and women are included in this table. For the purpose of this study, a special card is used, as shown herewith.

In this table all of the 35,429 applications made are included. Applications are made to one or more colleges; therefore, there are here represented 6,657 single applicants and 5,535 multiple applicants. In order to ensure a full freshman class, each college accepts more applicants than it can accommodate. All accepted applicants will not enroll. Some will go to the school of first choice, if accepted by that school; some will not enroll at all. The last column in the table shows the number actually enrolled or matriculated. Column 1 shows the number accepted who never have attended a medical school. Column 2 shows

TABLE 2. DATA BY COLLEGES ON TOTAL NUMBER OF APPLICATIONS MADE AND ACTION THEREON (MEN AND WOMEN)

School	I						II	Accepted	Rejected	Total	Enrolled in 1936 Class
	1	2	3	4	5	6					
Alabama	75	2	3	69	312	40		77	424	501	53
Arkansas	81	10	37	12	9	5		91	63	154	77
Medical Evangelists	117	1	50	61		1		118	112	230	102
California	79		16	35	142		23	79	216	295	61
Southern California.....	60		119	62	25	5	12	60	223	283	34
Stanford	84	1	165	4	3		12	85	184	269	60
Colorado	56	5	5	4	25	4	5	61	43	104	43
Yale	76		288	4	73		52	76	417	493	50
Georgetown.....	109		277	15	445	8	42	109	787	896	101
George Washington.....	86		3	38	493	14	191	86	739	825	67
Howard	56		163	17	4	4	10	56	198	254	42
Emory	79	2	42	6	68	4	54	81	174	255	60
Georgia	45	3	25	15	1		5	48	50	98	40
Chicago Medical.....	66	43			1	12	23	109	36	145	81
Univ. of Chicago.....	203		633	3	92		14	203	742	945	95
Illinois	138	1	37	19	105		57	139	217	356	162
Loyola	150	14	55	13	162	16	76	164	322	486	120
Northwestern	202		583	56	77		70	202	787	989	123
Indiana	115	9	118	4	208			124	330	454	104
Iowa	112		9	28	22		18	112	77	189	112
Kansas	94	1	72		34		111	95	205	310	83
Louisville	120	4	2	10	115	10	489	124	626	750	88
Louisiana	110	9	36	17	78	10	136	119	277	396	93
Tulane	201	6	92	50	107	10		207	259	466	127
Johns Hopkins	117		5	6	166	1	5	117	183	300	63
Maryland	135	1	149	20	328	8	93	136	598	734	96
Boston	77		30	4	221		30	77	285	362	68
Harvard	154		527	10	71		31	154	629	783	125
Tufts	151		66	18	125		34	151	241	392	107
Michigan	188	4	199	37	165		27	192	428	620	143
Wayne	43	9	57	27	9	2	15	52	110	162	62
Minnesota	127		46	26	103		234	127	409	536	118
Mississippi	25		10	5	2	2	44	25	63	88	19
Missouri	43	2	1	2	31		27	45	61	106	37
St. Louis	200	1	4		403	26	575	201	1008	1209	129
Washington	116		116	25	214	3	28	116	386	502	80
Creighton	106	5	1	2	135	3	17	111	158	269	71
Nebraska	120	2	42	14	9		4	122	71	193	94
Dartmouth	22		6	1	7	2	93	22	109	131	20
Albany	57		11	18	380	5	35	57	449	506	31
Buffalo	87		572	6	99	13	302	87	992	1079	71
Columbia	112	3	696	14	192	1	58	115	971	1086	106
Cornell (Ithaca)	25		18	4	99		16	25	137	162	21
Cornell (N. Y.).....	58		86	13	717	1		58	815	873	57
Long Island	122	5	188	25	722	6	96	127	1037	1164	93
N. Y. Medical	68	1	319	6	278	8	28	69	639	708	72
N. Y. University.....	173		273	3	392			173	668	841	136
Rochester	63		350		64	1	1	63	416	479	46
Syracuse	68		498	4	2	2	71	68	577	645	49
Duke	68			531	9	8		68	548	616	68
North Carolina	52	1	15	14	31	1	1	53	63	116	35
Wake Forest.....	32	1			28	8		33	36	69	27
North Dakota	35		2	9	19		286	35	316	351	27
Cincinnati	117	4	336	32	41	6		121	416	537	77
Ohio	105	4	78	16	52	15	11	109	172	281	117

TABLE 2—Continued

School	I						II	Accepted	Rejected	Total	Enrolled in 1936 Class
	1	2	3	4	5	6					
Western Reserve	116	2	36	54	537	7	45	118	679	797	72
Oklahoma	71	2	11	1	56		16	73	74	147	68
Oregon	80		42	7	38		207	80	294	374	56
Hahnemann	244		154	2	71	3	334	244	564	808	150
Jefferson	180		52	27	265	4	130	180	478	658	130
Pennsylvania	148	1	966	8	66	4	13	149	1057	1206	119
Pittsburgh	66		136	10	12	2	15	66	175	241	52
Temple	135		721	9	203	25		135	858	1093	98
Woman's Medical	31	1		5	31	10		32	46	78	31
South Carolina.....	41	1	185	20	8	17	244	42	474	516	42
South Dakota	28			3	28	4	4	28	39	67	21
Meharry	97	16		25				113	125	138	77
Tennessee	138	1	5	2	181	10		139	198	337	77
Vanderbilt	74		24		262	5	205	74	496	570	61
Baylor	117	2	28	3	44	7	2	119	84	203	103
Texas	99	3	96	4	1	1	4	102	196	208	100
Utah	38	2	33	3	1	3	4	40	42	82	42
Vermont	38		4		37	1	6	38	48	86	36
Med. Coll. Virginia....	118		288	24	59	8	33	118	412	530	79
Univ. Virginia.....	74		38		189	6		74	233	307	65
West Virginia.....	31	1	36	48	14	29	52	32	179	211	21
Marquette	125	4	244	17	133	19	8	129	421	550	94
Wisconsin	89	1	68	19	12			90	99	189	95

the number accepted who will repeat the freshman year, but it does not show how many are repeating in the school which ordered repetition. It only shows the number of applicants who are seeking admission in some other school than the one ordering repetition. Thus, there were accepted 193 repeaters. It should be noted that one school accepted 43 repeaters out of a total of 109 acceptances. Column 3 shows the number of applicants who were refused admission because the class was "filled," but, presumably, these applicants would have been accepted if there had been room for them because their credentials were acceptable. This always is a very large group and is composed of applicants who eventually gain admission in some school. Sometimes they are placed on a waiting list and are admitted when some others fail to matriculate.

Column 4 consists of applicants who were refused because their credentials were inadequate quantitatively. Many of these applicants are admitted by a school whose requirements are not beyond what the applicant can offer in the way of credits.

Column 5 is another large group consisting of applicants whose scholarship or personality is poor. Action by the medical schools on this item is somewhat variable; therefore, an applicant falling in this classification does not, necessarily, fail of admission by some school. Opinions on these two points are bound to differ, for obvious reasons.

Column 6 includes 444 applicants (many of them may be multiple applicants; probably are) who failed of admission because of unsatisfactory work in

another medical school. In other words, they are repeaters who failed of acceptance. Some of these may be duplicated in column 2 because of varying opinions as to the acceptability of the applicant.

The colleges who refuse to accept a repeater, either their own or from some other school, are becoming more numerous each year. On the whole, they comprise about one-third of the schools included in this study. It is well known that it is becoming increasingly difficult for a repeater to get in somewhere. Extreme care is exercised before a repeater is accepted.

Table 3 presents the data on the acceptance and rejection of applicants on the basis of their preparation for the study of medicine. It is a definite refutation of the claim often made that students with the minimum amount of preparation are discriminated against. True, some medical schools, a few only, accept only applicants who hold a bachelor's degree although their published entrance

TABLE 3. ACCEPTANCES AND REJECTIONS OF APPLICANTS ACCORDING TO LENGTH OF PREPARATION FOR THE STUDY OF MEDICINE.

	Single Applicants		Multiple Applicants		Totals	% of all applicants	% accepted
	accepted	rejected	accepted	rejected			
1—2 years	2	33		6	41		
2—3 years	747	503	118	136	1504	12.3	57.5
3—4 years	1204	796	600	541	3141	25.7	57.4
4 or more years.....	159	235	119	163	676	5.5	41.1
A. B. degree.....	780	518	1137	825	3260	26.8	58.8
B. S. degree	520	441	385	820	2666	21.8	52.7
B. S. & A. B. degrees....	5	3	4	6	18		50.0
M. A. degree.....	25	20	22	26	93		50.5
M. S. degree.....	21	15	16	18	70		52.0
Ph. D. degree.....	15	6	6	4	31		67.7
Other degrees	23	51	18	34	126	1.03	31.7
Not stated	37	498	2	29	566	4.6	68.9
	3538	3119	2927	608	12192		

requirements are three, or even two years of college work. Only one school, Johns Hopkins University, absolutely requires a degree for admission.

This table shows that next to holders of an A.B. degree, the applicants with less than three years of preparation in college are accepted in large numbers, although they are next to the smallest group of applicants. Incidentally, these men also do better work in medical school than any other group, except the A.B. men. The B.S. men rank fourth. The "not stated" group includes those applicants whose premedical preparation was not given by the college to which they applied; doubtless, an oversight.

Year after year, fewer applicants with less than three years of preparation apply. In 1936, only 9 per cent of the freshmen offered less than three years of credit and about one-third of these had more than 60 hours of credit, at least 2½ years. It is evident that if the requirements were increased to three years of college work, many very desirable students would be excluded. And, furthermore, it is evident that students preparing for medicine feel the need for

further preparation. Likewise, more applicants with degrees come into medicine. In 1936, nearly 54 per cent of the freshmen were holders of a degree. The problem of entrance into medical school may be regarded as not being a problem at all. There is no need to worry about it.

Table 4 sets forth the data on applications with reference to action taken on them. It includes single and multiple applicants. The greatest number of applications were made by the bachelors of arts; next by the bachelors of science;

TABLE 4. ANALYSIS OF ACTION TAKEN ON ALL APPLICATIONS ON BASIS OF PREPARATION FOR THE STUDY OF MEDICINE.

Action Taken	1 to 2 Years	2 to 3 Years	3 to 4 Years	4 or more Years	A. B.	B. S.	A. B. & B. S.	M. A.	M. S.	Ph. D.	Other Deg.	Not Stated	Totals
I.													
1	6	862	1990	329	2348	1754	9	50	44	19	40	119	7570
2	..	41	44	6	54	30	..	1	2	1	179
3	4	284	1671	483	4070	3354	8	171	112	13	76	311	10,557
4	40	218	403	310	298	237	1	17	12	3	43	144	1726
5	20	515	1898	667	3051	3039	11	86	50	7	83	442	9869
6	..	19	64	29	161	93	3	1	5	..	4	26	405
II.	4	150	689	201	1143	945	7	50	24	3	35	1882	5133
Totals	74	2089	6759	2025	11,125	9452	39	376	247	45	283	2925	35,439

then the three year group, and fourth by the two year group, thus substantiating what has been said in the analysis of table 3. By referring to the application card it will be noted that item II is "no action taken." In this group are those men whose applications were not complete or who were not considered at all because the class was full. No analysis was made of their credentials inasmuch

TABLE 5. DATA ON WOMEN APPLICANTS IN 1933, 1934, 1935 AND 1936.

	1933	1934	1935	1936
Total applications.....	833	1034	1443	1384
Applications accepted.....	410 (49.4%)	464 (44.8%)	414 (28.6%)	445 (32.1%)
Total women applicants	507	636	689	659
Single applicants	355	458	439	411
Single applicants accepted.....	200 (56.5%)	262 (51.0%)	230 (54.6%)	216 (52.5%)
Multiple applicants	152	178	250	248
Multiple applicants accepted..	116 (76.3%)	122 (68.5%)	149 (59.6%)	157 (63.3%)

as there was no need for doing so. Many in this group might have been accepted, hence "no action taken" is not discrimination nor a discredit to the applicant. But each instance must be counted as an application, nevertheless, for the purpose of this study.

Table 5 presents the data on the women applicants for the years 1933, 1934, 1935 and 1936. The women applicants are fewer in number for 1936 than for 1934 and 1935, and they made fewer applications, although not proportionately with previous years. More women applicants were accepted in 1936 than in 1935, but not nearly so many as in 1934 and 1933. The multiple applicants

TABLE 6. APPLICATIONS MADE BY WOMEN APPLICANTS AND NUMBER ACCEPTED (PER SCHOOL). RATIO 1934-1935-1936.

School	1934		1935		1936	
	No. Apps.	Acc.	No. Apps.	Acc.	No. Apps.	Acc.
Alabama	8	2	11	3	12	4
Arkansas	5	5	8	6	3	1
Medical Evangelists	16	9	18	9	21	9
Stanford	7	3	20	1	22	5
California	17	2	35	16	25	7
Southern California	12	2	22	0	16	2
Colorado	9	8	6	4	4	4
Yale	28	8	22	10	32	5
George Washington	21	11	31	4	40	6
Howard	9	3	5	2	10	3
Georgia	4	1	3	1	3	3
Loyola	14	8	20	6	20	7
Northwestern	43	5	58	4	48	5
Chicago	23	16	46	12	52	13
Illinois	33	10	21	8	29	14
Chicago Medical	4	3	4	4	4	3
Indiana	17	4	20	10	8	3
Iowa	6	4	9	7	9	5
Kansas	14	10	9	5	15	5
Louisville	9	2	19	4	14	6
Tulane	10	4	14	3	12	7
Louisiana	15	9	13	6	9	4
Johns Hopkins	24	9	28	10	32	19
Maryland	14	10	20	2	12	4
Boston	13	9	25	12	24	8
Tufts	17	9	18	8	17	7
Wayne	9	5	9	2	9	4
Michigan	18	14	28	15	35	20
Minnesota	11	8	15	8	28	10
Missouri	4	2	1	1	4	1
Washington	10	6	17	5	12	8
Creighton	4	3	6	3	14	8
Nebraska	1	0	4	4	9	6
Albany	11	2	13	2	14	4
Columbia	45	10	78	10	75	12
Cornell (Ithaca)	6	3	10	3	14	2
Cornell (N. Y.)	56	14	67	10	59	7
Long Island	28	10	56	7	52	12
New York Medical	8	3	31	8	32	3
New York University	32	13	50	16	47	21
Syracuse	3	2	21	2	25	5
Buffalo	15	6	41	5	33	4
Rochester	11	2	19	3	19	2
Duke	19	6	23	2	20	3
North Carolina	7	5	6	0	5	5
Wake Forest	0	0	7	2	1	0
North Dakota	5	1	5	0	8	3
Ohio	12	5	16	9	12	4
Cincinnati	8	7	22	9	14	9
Western Reserve	14	8	26	4	26	4
Oklahoma	3	3	2	2	9	4
Oregon	11	6	18	11	21	7
Pennsylvania	34	5	45	6	44	6
Temple	24	10	47	10	30	8
Pittsburgh	12	4	14	4	13	2

TABLE 6—Continued.

School	1934		1935		1936	
	No. Appa.	Acc.	No. Appa.	Acc.	No. Appa.	Acc.
Woman's Medical	89	60	104	36	78	32
Med. College So. Carolina ..	11	3	19	2	14	3
Meharry	6	5	4	2	8	7
Tennessee	7	5	5	5	9	4
Vanderbilt	13	4	12	2	16	5
Baylor	9	6	8	6	7	5
Texas	13	8	12	10	12	8
Utah	3	3	2	2	3	2
Vermont	8	4	14	5	5	3
Med. College of Virginia....	6	6	19	11	27	15
Virginia	5	3	8	4	7	0
West Virginia	16	4	11	1	7	2
Marquette	5	4	12	2	13	4
Wisconsin	10	5	12	4	8	5

were virtually as numerous as in 1935 but much more so than in 1933 and 1934. About 55 per cent of all women applicants were accepted. Only about 10 per cent of all women applicants accepted enrolled in the Woman's Medical College; 90 per cent preferred the coeducational medical colleges.

Table 6 presents the data on women applicants by medical schools for three years, 1934, 1935 and 1936. The number of applications made and accepted by each medical college is shown. Apparently only 9 medical colleges did not receive any applications from women because none are admitted by these colleges.

Table 7 presents the data on the multiple applicants. Of the 5,535 multiple applicants, 3,496 made from 2 to 4 applications; 1,340 made from 5 to 9 applications; 392 made from 10 to 14 applications; 178 made from 14 to 19 applications; 80 made from 20 to 24 applications; 32 made from 25 to 29 applications; 12 made from 30 to 34 applications and 5 made from 35 to 45 applications; 699 made from 10 to 45 applications. Incidentally, 45 applications is the largest number of applications ever made by an individual applicant—and he failed of acceptance by any college. Very few of the higher multiples had an acceptance. Some of these applicants have tried in previous years to be admitted. One applicant made 70 applications in three years and failed of acceptance. He finally was admitted by a medical school in Edinburgh.

Applicants in the lower brackets often are desirable students. They fear nonacceptance, therefore apply to two or three medical school colleges any one of which will suit them if accepted. From 5 applications upward, a check on the cards shows that they are trying to "get in" somewhere, although they do not always succeed. Many of them ultimately fail in their work and drop out or appear the next year as "repeaters" seeking admission.

Table 8 presents the geographic distribution of the applicants. The first six states named in the table have a population of approximately 40,000,000, about one-third of the total population of the United States. From these states came 6,281, or 51.5 per cent, of the total number of applicants. The second group of six states accounts for 2,032 applicants, or 16.6 per cent; the third

TABLE 7. DETAILS 5535 MULTIPLE APPLICANTS AS TO NUMBER OF APPLICATIONS MADE, ACCEPTANCES AND REJECTIONS.

1797 made 2 applications=3594	101 made 10 applications=1010
747 had no acceptances.	63 had no acceptances.
1050 had 1335 acceptances.	38 had 59 acceptances.
1 acceptance=765	1 acceptance=23
2 acceptances=285	2 acceptances=10
	3 acceptances=4
	4 acceptances=1
1034 made 3 applications=3102	93 made 11 applications=1023
412 had no acceptances.	63 had no acceptances.
622 had 903 acceptances.	30 had 47 acceptances.
1 acceptance=392	1 acceptance=18
2 acceptances=179	2 acceptances=8
3 acceptances=51	3 acceptances=3
	4 acceptances=1
665 made 4 applications=2650	77 made 12 applications=924
269 had no acceptances.	49 had no acceptances.
396 had 630 acceptances.	28 had 35 acceptances.
1 acceptance=241	1 acceptance=22
2 acceptances=93	2 acceptances=5
3 acceptances=45	3 acceptances=1
4 acceptances=17	
419 made 5 applications=2095	66 made 13 applications=858
200 had no acceptances.	47 had no acceptances.
219 had 349 acceptances.	19 had 27 acceptances.
1 acceptance=132	1 acceptance=13
2 acceptances=55	2 acceptances=5
3 acceptances=22	4 acceptances=1
4 acceptances=9	
5 acceptances=1	55 made 14 applications=770
323 made 6 applications=1938	33 had no acceptances.
153 had no acceptances.	22 had 32 acceptances.
170 had 278 acceptances.	1 acceptance=16
1 acceptance=100	2 acceptances=4
2 acceptances=43	3 acceptances=1
3 acceptances=17	5 acceptances=1
4 acceptances=9	
5 acceptances=1	55 made 15 applications=825
272 made 7 applications=1904	38 had no acceptances.
151 had no acceptances.	17 had 28 acceptances.
121 had 179 acceptances.	1 acceptance=11
1 acceptance=77	2 acceptances=3
2 acceptances=32	3 acceptances=1
3 acceptances=10	4 acceptances=2
4 acceptances=2	
172 made 8 applications=1376	44 made 16 applications=704
99 had no acceptances.	32 had no acceptances.
73 had 129 acceptances.	12 had 16 acceptances.
1 acceptance=39	1 acceptance=10
2 acceptances=19	2 acceptances=1
3 acceptances=9	4 acceptances=1
4 acceptances=5	
5 acceptances=1	35 made 17 applications=595
	21 had no acceptances.
	14 had 20 acceptances.
	1 acceptance=8
	2 acceptances=6
154 made 9 applications=1386	24 made 18 applications=432
98 had no acceptances.	17 had no acceptances.
56 had 88 acceptances.	7 had 13 acceptances.
1 acceptance=34	1 acceptance=2
2 acceptances=14	2 acceptances=4
3 acceptances=6	3 acceptances=1
4 acceptances=2	

TABLE 7—Continued.

20 made 19 applications=380	9 made 28 applications=252
16 had no acceptances.	8 had no acceptances.
4 had 6 acceptances.	1 acceptance—1
1 acceptance—3	
3 acceptances—1	6 made 29 applications=174
	5 had no acceptances.
14 made 20 applications=280	1 acceptance—1
10 had no acceptances.	
4 had 6 acceptances.	1 made 30 applications=30
1 acceptance—3	No acceptances.
3 acceptances—1	
24 made 21 applications=504	2 made 31 applications=62
17 had no acceptances.	2 had no acceptances.
7 had 8 acceptances.	
1 acceptance—6	4 made 32 applications=128
2 acceptances—1	2 had no acceptances.
	2 had 3 acceptances.
16 made 22 applications=352	1 acceptance—1
11 had no acceptances.	2 acceptances—1
5 had 6 acceptances.	
1 acceptance—4	2 made 33 applications=66
2 acceptances—1	1 had no acceptance.
	1 had 1 acceptance.
14 made 23 applications=322	
13 had no acceptances.	3 made 34 applications=102
1 acceptance—1	3 had no acceptances.
12 made 24 applications=288	1 made 36 applications=36
7 had no acceptances.	No acceptances.
5 had 5 acceptances.	
1 acceptance—5	1 made 37 applications=37
	No acceptances.
4 made 25 applications=100	
3 had no acceptances.	1 made 40 applications=40
1 acceptance—1	1 acceptance.
5 made 26 applications=130	1 made 42 applications=42
5 had no acceptances.	No acceptances.
8 made 27 applications=216	1 made 45 applications=45
8 had no acceptances.	No acceptances.

group of three states accounts for 2,653, or 21.9 per cent of the total number of applicants. Fifteen states, then, account for more than 200 applicants each, giving a total of 10,966 applicants, or 90 per cent of all applicants. Only 118 applicants are residents of a foreign country. Twenty-six foreign countries are represented.

This table does not, however, show where any of these applicants, who may graduate, will eventually practice. Hence, it is not possible to say that too many applicants come from any one state or region of the United States. The geographic distribution of the arts colleges attended by these applicants might be correlated by the number of applicants, but any conclusions based on this premise would be fallacious. Furthermore, this point is not within the possibilities of control. It would be interesting to check on the final settling of these applicants when they enter on practice, but even any data eventuating from such a study would have little, if any, value.

TABLE 8. GEOGRAPHIC DISTRIBUTION OF 12,192 APPLICANTS*

	Single applicants	Multiple applicants	Total
New York	797	1650	2447
Pennsylvania	450	651	1101
Illinois	512	266	778
California	362	317	679
Ohio	323	354	677
New Jersey	176	383	559
Massachusetts	166	303	469
Texas	253	145	398
Michigan	261	118	379
Indiana	217	52	269
Wisconsin	208	60	268
Minnesota	205	44	249
Missouri	130	83	213
North Carolina	125	82	207
Iowa	177	24	201
Georgia	124	67	191
Connecticut	64	113	177
Oklahoma	127	47	174
Nebraska	132	28	170
Kansas	111	58	169
Tennessee	133	35	168
Virginia	120	47	167
Maryland	121	38	159
West Virginia	84	74	158
South Carolina	100	57	157
Louisiana	126	19	145
Alabama	84	59	143
Kentucky	86	55	141
Washington	61	76	137
Mississippi	80	49	129
District of Columbia	85	27	112
Arkansas	89	16	105
Florida	53	45	98
Colorado	72	12	84
Oregon	56	20	76
North Dakota	61	15	76
Puerto Rico	29	46	75
Vermont	60	8	68
Utah	38	25	63
Rhode Island	8	50	58
Maine	19	39	58
Idaho	16	33	49
South Dakota	29	12	41
New Hampshire	17	21	38
Hawaii	9	20	29
Arizona	10	18	28
Canada	23	4	27
Delaware	7	15	22
Montana	11	7	18
New Mexico	6	11	17
Wyoming	8	4	12
Cuba	9	1	10
Nevada	4	5	9
China	1	7	8
Panama	4	4	8
Mexico	1	3	4

TABLE 8—Continued

	Single applicants	Multiple applicants	Total
Philippine Islands	1	2	3
British West Indies	2	1	3
Alaska	1	2	3
Persia		2	2
Costa Rica	2		2
Siam		2	2
India	1		1
England	1		1
Japan	1		1
East Africa		1	1
Afghanistan		1	1
Germany	1		1
Turkey		1	1
Bahamas	1		1
Honduras		1	1
Labrador	1		1
Colombia	1		1
Russia	1		1
Dutch West Indies		1	1
Iraq	1		1
Palestine	1		1
Latvia	1		1
Bulgaria	1		1
	6657	5535	12,192

*Forty-seven states are represented and also Hawaii, Puerto Rico, Alaska, Panama, District of Columbia and 26 foreign countries.

It is possible to check on the multiples to note how they fared and whether they graduated or not. The records on file in the office of the Association show that, on the whole, they do not do well; that many of them are dropped or drop out voluntarily, usually at the end of the first year of the medical course. Probably, most of the 25 per cent of students who fail to graduate were multiple applicants. If every medical college asked for a check on the application record of the freshman class, it might have value by directing attention to those students who made, say, ten or more applications; at any rate, those who made twenty or more applications. Many medical colleges ask for such a check each year because they find that this information has value.

A study of the tables presented herewith will disclose much to which no reference has been made in this analysis. The information presented is unique and nowhere else obtainable. It is the only effort made to secure data on the number of applicants, applications and preparation for the study of medicine; acceptances and rejections and reasons for rejection. Daily use is made of these cards to supply information to medical colleges and in the detection of fraud. It has definitely been proven to have value, fully justifying the enormous amount of labor entailed in making the study.

Grateful acknowledgment is made to the medical colleges who have aided in giving the information which has made this study possible.

Topic Schedule of a Highly Correlated Course in Anatomy

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An outstanding issue in the organization of anatomical teaching today is the determination of the relative emphasis to be placed on the traditional anatomical subjects of gross, microscopic and developmental anatomy as units, on the one hand, and on the study of the structure of the human body as an integrated whole, on the other. It is here claimed that the teaching of the body as an integrated whole is more fundamental and necessary than the presentation of microscopic or developmental anatomy as closely knit units.

In order to do himself justice in passing on the relative merits of the two methods, the instructor should participate actively in the laboratory work in both microscopic and gross anatomy since these are major fields of anatomical instruction. The fact that an instructor has taught one of these subjects years ago, or even both, is not likely to assure the grasp of them as practical teaching problems needed to appreciate the force of the highly correlated plan.

The general features of correlation embodied in this topic list must be adopted if the student is to learn, to as large a degree as possible, the human body as an integrated whole. The body wall and extremities must be presented in advance of the deep lying viscera so that such topics as muscles, bones and joints will each be unified, as far as possible, in the student's thinking. The wall of the trunk should precede the extremities. Each visceral system should, as far as is practicable, be studied in a functional order. As large segments of a system as possible should be treated at one time. When these arrangements have been made, another important correlation can be effected in that the gross, microscopic and developmental anatomy of many single organs or of small groups of related organs can be studied in immediate sequence.

These various features of coordination have a combined effect in clarifying and unifying the student's understanding of bodily structure to a degree that really cannot be approached by any other plan of instruction. This statement is based on earlier experience with the usual methods, followed by use for a number of years of the highly correlated plan, first with small classes and later with large classes. It is the method which stores memories of anatomy of an organ in the student's mind in a manner desirable for later medical practice. When the clinician turns his attention to a diseased organ, he desires to recall with a minimal effort its blended gross, microscopic and developmental anatomy. In order that its anatomy may come to memory readily as a unit, it must have been learned as a unit.

We must expect the teacher of microscopic anatomy to be perturbed when this plan is first presented to him. He reacts in defense of the solidarity of his subject. This is unfortunate. The spreading of microscopic anatomy over a

longer interval of time, as is the practice in the highly correlated course, does not weaken the impression it makes on the student. The effect is the opposite. The blending of the microscopic anatomy with the developmental and gross phases of human structure illuminates microscopic anatomy by placing it in its background of the total body and renders it more interesting.

Developmental anatomy, because of the relatively few hours devoted to it, will show a wide spacing of topics after the united introductory study of early stages has been completed. This in itself is a disadvantage but it is much more than compensated for by the fact that the interest and understanding of the subject is raised to a higher plane by association with gross and microscopic anatomy of various organs or groups of related organs.

The high correlation of the course frees the instructor from a host of explanations because the logical sequence renders many anatomic considerations obvious to the student. The instructor, thus, has more energy to expend in studying the student, and can record his mental traits more thoroughly and advise him more effectively. There is more time for devising and applying special methods to encourage the formation of desirable mental habits.

Some of the topics of talks and lectures listed will seem to the anatomist a necessary part of the general plan of the course. The appropriateness of others may be questioned. It seems desirable to include these others as a stimulus to discussion. Criticisms of them and suggestions of more suitable topics will be welcomed. There are of course many brief laboratory talks and discussions not indicated in the topic list.

Two features of the course have been omitted, for brevity. The tests and examinations do not appear in the list. Tests are frequent at the beginning of the course and later are more widely spaced. There are also weekly meetings, not included in the list at which clinicians demonstrate on hospital patients, with the aid of an instructor in anatomy, features of the clinical anatomy of a region being studied at the time. Clinical considerations are also presented in moderation by a number of teaching assistants who are in active practice. The course is planned to lead up to the anatomy of the central nervous system but does not neglect considerations of this system that can be more appropriately considered within the confines of the course.

PART I.

Body Wall, Extremities. Tissues,

Microscopic Organology and Developmental Anatomy in part.

1. Gross Anatomy, 1 hr. Lecture: Introduction to anatomy.
2. Microscopic Anatomy, 4 hrs. Lecture and Laboratory: Cell structures.
3. Microscopic Anatomy, 3 hrs. Laboratory and Talk: Cell relations. Demonstration: Living and fixed cells of the same type.
- 4-7. Developmental Anatomy, 14 hrs. Lecture and Laboratory: Germ cells, early development.
8. Gross Anatomy, 3 hrs. Talk: Introduction to dissection. Laboratory: Surface of anterior thoracic wall; clavicle; sternum.
9. Gross Anatomy, 3 hrs. Laboratory: Pectoralis major. Demonstration on living.

10. Gross Anatomy, 3 hrs. Laboratory: Costo-coracoid membrane; pectoralis minor; subclavius. Talk: Terms of orientation.
11. Gross Anatomy, 3 hrs. Laboratory: Axilla. Talk: Relation of vascular pattern to organic environment as shown by axillary blood vessels; variability of vessels.
12. Gross Anatomy, 3 hrs. Laboratory: Posterior triangle of neck in part.
13. Gross Anatomy, 1 hr. Lecture: Terminology.
14. Gross Anatomy, 5 hrs. Laboratory: Cutaneo-subcutaneous layer of dorsum; trapezius; latissimus dorsi; omohyoid in part. Demonstration on living.
15. Gross Anatomy, 3 hrs. Laboratory: Serratus anterior; levator scapulae; rhomboids.
16. Gross Anatomy, 1 hr. Laboratory: Sternoclavicular joint.
17. Gross Anatomy, 1 hr. Talk: Hygiene of study; methods of review.
18. Gross Anatomy, 2 hrs. Talk and Laboratory: Removal of upper extremity.
19. Gross Anatomy, 1 hr. Laboratory: Thoracic cage as a whole; bony prominences.
20. Gross Anatomy, 3 hrs. Laboratory: Intercostal structures.
21. Gross Anatomy, 2 hrs. Laboratory: Skeleton and joints of thorax. Talk and Demonstration on living: Respiratory and postural movements of thorax.
22. Gross Anatomy, 4 hrs. Laboratory and Demonstration on living: Cutaneo-subcutaneous layer of anterior abdominal wall; cutaneous areas.
23. Microscopic Anatomy, 4 hrs. Laboratory and Talk: Epithelium.
24. Gross Anatomy, 4 hrs. Laboratory: External abdominal oblique; space of Grynfeldt and vicinity.
25. Gross Anatomy, 4 hrs. Laboratory: Internal abdominal oblique; transversus and rectus abdominis; pyramidalis. Talk: Structural adaptations of abdominal wall to function.
26. Gross Anatomy, 4 hrs. Laboratory and Talk: Inguinal canal; scrotum; femoral canal.
27. Gross Anatomy, 4 hrs. Laboratory: Cutaneo-subcutaneous layer of anterior neck wall. Talk: Cutaneous metamerism.
28. Gross Anatomy, 3 hrs. Laboratory: Musculo-skeletal layer of anterior neck. Talk: Morphology of its muscles; its extra-organic gross connective tissue structures.
29. Gross Anatomy, 4 hrs. (not required). Laboratory: Dorsal axial musculo-skeletal layer. Talk: Posture and movements of trunk with especial reference to vertebral column and dorsal axial muscles.
30. Gross Anatomy, 1 hr. Lecture: Extra-organic gross connective tissue structures.
31. Microscopic Anatomy, 5 hrs. Lecture and Laboratory: Connective tissue (narrow sense).
32. Microscopic Anatomy, 2 hrs. Laboratory and Talk: Cartilage.
33. Gross Anatomy, 4 hrs. Laboratory: Cutaneo-subcutaneous layer of upper extremity. Talk: Cutaneous metamerism and lymphatics of upper extremity.
34. Gross Anatomy, 6 hrs. Laboratory: Chief rotator muscles of shoulder; Acromioclavicular joint. Talk: Bursae.
35. Gross Anatomy, 2 hrs. Laboratory: Anterior arm.
36. Gross Anatomy, 2 hrs. Laboratory: Dorsum of arm; cross section of arm.*
37. Gross Anatomy, 1 hr. Lecture: Classification of bones; a bone as an organ.
38. Gross Anatomy, 1 hr. Laboratory: Cubital fossa.
39. Gross Anatomy, 6 hrs. Laboratory: Volar forearm. Demonstration on living arm. Talk: Collateral circulation.
40. Gross Anatomy, 1 hr. Lecture: Adaptations of a bone to mechanical functions.
41. Microscopic Anatomy, 3 hrs. Lecture and laboratory: Bone and bones.
42. Developmental Anatomy, 1 hr. Gross features of later growth of bones.

*A chosen cross-section is to be memorized so that it can be reproduced in a drawing.

43. Developmental Anatomy, 1 hr. Lecture: Blood.
44. Microscopic Anatomy, 3 hrs. Laboratory and Talk: Blood, living and fixed.
45. Microscopic Anatomy, 2 hrs. Laboratory: Bone marrow.
46. Gross Anatomy, 4 hrs. Laboratory: Volar hand through long flexor tendons. Talk: "Spaces" of hand and "Sheath" bursae or Comparative anatomy of muscles of forearm and hand.
47. Gross Anatomy, 5 hrs. Laboratory: Volar hand, concluded. Talk: Structural adaptations of hand to function or Function of a "cutaneous" nerve.
48. Gross Anatomy, 5 hrs. Laboratory: Dorsal forearm and hand; cross-section of forearm and of hand.
49. Microscopic Anatomy, 3 hrs. Laboratory: Neuron; cerebrospinal nerve and ganglion; visceral nerve and ganglion.
50. Gross Anatomy, 1 hr. Lecture: Joints, in part.
51. Gross Anatomy, 4 hrs. Laboratory: Shoulder and elbow joints; radiograms of upper extremity.
52. Gross Anatomy, 1 hr. Lecture: Joints, completed.
53. Gross Anatomy, 4 hrs. Laboratory: Joints of forearm and hand.
54. Gross Anatomy, 1 hr. Lecture: Associated action of muscles.
55. Gross Anatomy, 3 hrs. Review of upper extremity on living and from colored dissections.
56. Microscopic Anatomy, 1½ hrs. Laboratory: Smooth muscle.
57. Gross Anatomy, 1 hr. Lecture: Arrangement of fascicles and tendons of a muscle as an adaptation to function.
58. Microscopic Anatomy, 3 hrs. Laboratory: Striated muscle.
59. Gross Anatomy, 1 hr. Lecture: Further on a muscle as an organ.
60. Developmental Anatomy, 1 hr. Lecture: A muscle.
61. Microscopic Anatomy, 2 hrs. Laboratory: Cardiac muscle.
62. Developmental Anatomy, 1 hr. Lecture: Integumentary system.
63. Microscopic Anatomy, 3 hrs. Laboratory and Talk: Integumentary system.
64. Gross Anatomy, 1 hr. Lecture: Cutaneous folds and ridges; hair.
65. Gross Anatomy, 6 hrs. (not required). Laboratory: Demonstration and rapid dissection of gluteal region and thigh.
66. Gross Anatomy, 2 hrs. Laboratory: Popliteal region.
67. Gross Anatomy, 4 hrs. Laboratory: Cutaneo-subcutaneous layer of leg and foot.
68. Gross Anatomy, 4 hrs. Laboratory: Musculo-skeletal layer of posterior leg; cross-section.
69. Gross Anatomy, 3 hrs. Laboratory: Plantar foot; cross-section. Talk: Structural adaptations of foot for support and progression.
70. Gross Anatomy, 5 hrs. Laboratory: Hip, knee, tibio-fibular and ankle joints. Radiograms of lower extremity.
71. Gross Anatomy, 1 hr. Lecture: Comparison of upper and lower extremities.
72. Gross Anatomy, 3 hrs. Laboratory: Bones and joints of foot.

PART II.

Gross, Microscopic and Developmental Anatomy of the Viscera within the Body Wall.

73. Gross Anatomy, 3 hrs. Laboratory: Digastric and submental triangles.
74. Gross Anatomy, 3 hrs. Laboratory: Carotid triangle. Talk: Topographic anatomy of carotid triangle and neighboring regions.
75. Developmental Anatomy, 3½ hrs. Lecture and Laboratory: Visceral arches; face, including nasal and oral cavities.

76. Gross Anatomy, 4 hrs. Laboratory: Face through cutaneous muscles.
77. Gross Anatomy, 5 hrs. Laboratory: Face, continued, through parotid plexus and cutaneous nerves. Talk: Parotid gland; nerves of cutaneo-subcutaneous layer of face.
78. Gross Anatomy, 3 hrs. Laboratory: Masseter; temporal; mandible in part.
79. Gross Anatomy, 3 hrs. Laboratory: Mandibular canal and joint; buccinator muscle.
80. Gross Anatomy, 3 hrs. Laboratory: External pterygoid; base of skull; parts of internal maxillary artery and mandibular nerve. Talk: Structural adaptations for mastication.
81. Gross Anatomy, 4 hrs. Laboratory: Internal pterygoid; facial and mandibular nerves in part; other features of deep face.
82. Gross Anatomy, 4 hrs. Laboratory: Nerves and vessels of deep retro-mandibular region. Talk: Nodous and superior cervical sympathetic ganglia.
83. Gross Anatomy, 2 hrs. Laboratory: Sublingual region. Talk: Paths of sub-mandibular ganglion.
84. Gross Anatomy, 2 hrs. Laboratory: Pharynx from exterior.
85. Gross Anatomy, 1 hr. Lecture: Vegetative nervous system.
86. Gross Anatomy, 4 hrs. Laboratory and Talk: Visceral nerves and vessels of deep anterior neck.
87. Gross Anatomy, 3 hrs. Laboratory: Completion of cervical and brachial plexi and review from colored preparations.
88. Gross Anatomy, 6 hrs. Laboratory: Oral cavity including tongue, teeth and summary of salivary glands. Talk: Teeth and salivary glands.
89. Gross Anatomy, 4 hrs. Laboratory: Pharynx dissected from interior; internal relief of larynx; cross-section of neck. Talk: Lymphatic structures of oral cavity and pharynx.
90. Gross and Developmental Anatomy, 1½ hrs. Lecture: Branchial and metameric segmentation of head and neck.
91. Microscopic Anatomy, 1 hr. Lecture: Structural and functional classification of glands.
92. Microscopic Anatomy, 3 hrs. Laboratory: Salivary and mammary glands.
93. Gross and Developmental Anatomy, 3½ hrs. Gross laboratory: Thyroid, parathyroid and thymus glands. Talk: Development of endocrine glands of pharynx; development of salivary glands.
93. Gross and Developmental Anatomy, 3½ hrs. Gross Laboratory: Thyroid, parathyroid.
95. Developmental Anatomy, 1 hr. Lecture: Blood vessels.
96. Developmental Anatomy, 4 hrs. Lecture: Heart. Laboratory: Blood vessels and heart.
97. Gross Anatomy, 7 hrs. Laboratory and Lecture: Heart and pericardium.
98. Gross and Microscopic Anatomy, 1 hr. Lecture: Branching of arteries.
99. Gross Anatomy, 7 hrs. Laboratory: Superior mediastinum, including pulmonary artery, cross-section, radiograms of heart and of superior mediastinum.
100. Gross and Microscopic Anatomy, 1 hr. Lecture: Innervation of blood vessels.
101. Microscopic Anatomy, 3 hrs. Laboratory and Talk: Blood vessels.
102. Developmental Anatomy, 1 hr. Lecture: Respiratory system; diaphragm; serous cavities.
103. Gross Anatomy, 6 hrs. Laboratory and Lecture: Respiratory system below larynx; cross-section of thorax.
104. Microscopic Anatomy, 3 hrs. Laboratory and Talk: Respiratory system below larynx.
105. Gross and Developmental Anatomy, 1 hr. Lecture: Lymphatic system.

106. Microscopic Anatomy, 3 hrs. Laboratory and Talk: Lymphatic system.
107. Gross Anatomy, 3 hrs. Laboratory: Posterior mediastinum. Discussion: Vegetative nervous system of thorax.
108. Gross Anatomy, 1 hr. Lecture: Thoracic lymphatic system.
109. Gross Anatomy, 4 hrs. Laboratory and Lecture: Abdominal and peritoneal cavities above linea terminalis; undissected mesenteries.
110. Developmental Anatomy, 4 hrs. Lecture and Laboratory: Digestive tube caudal to pharynx.
111. Gross Anatomy, 4 hrs. Laboratory: Jejunum-ileum and mesentery.
112. Gross Anatomy, 4 hrs. Laboratory: Colon; cecum; vermiform process. Demonstration on model: Developmental movements and fixation of abdominal digestive system.
113. Gross Anatomy, 4 hrs. Laboratory: Esophagus; stomach; omental bursa; radiograms of abdominal digestive tract. Talk: Valves and sphincters of digestive tract; significance of distribution of longitudinal muscle.
114. Microscopic Anatomy, 3 hrs. Laboratory and Talk: Esophagus and gastrointestinal canal.
115. Developmental Anatomy, 1 hr. Lecture: Pancreas; liver.
116. Gross Anatomy, 1 hr. Lecture: Fetal circulation and changes of blood vessels for postpartum life.
117. Gross Anatomy, 4 hrs. Laboratory: Liver. Talk: Structures supporting abdominal viscera and structures limiting their movements.
118. Microscopic Anatomy, 3 hrs. Laboratory and Talk: Liver, including gall-bladder.
119. Gross Anatomy, 2 hrs. Laboratory: Duodenum. Talk: Duodenum; pancreas.
120. Gross and Microscopic Anatomy, 2 hrs. Laboratory: Pancreas.
121. Gross and Microscopic Anatomy, 2 hrs. Laboratory: Spleen.
122. Gross Anatomy, 3 hrs. Laboratory: Celiac nervous plexus, in part, and adjacent structures.
123. Gross Anatomy, 1½ hrs. Laboratory: Suprarenal.
124. Developmental Anatomy, ½ hr. Talk: Chromaffin system; suprarenal.
125. Microscopic Anatomy, 1½ hrs. Laboratory: Suprarenal.
126. Developmental Anatomy, 4 hrs. Lecture and Laboratory: Kidney.
127. Gross Anatomy, 5 hrs. Laboratory: Kidney and ureter to linea terminalis; injected pig's kidney; radiograms. Talk: Renal connective tissue bed; topography.
128. Microscopic Anatomy, 3 hrs. Laboratory: Kidney, including dissociated tubules.
129. Gross Anatomy, 4 hrs. Laboratory: Abdominal vegetative nervous system and lymphatics above linea terminalis.
130. Gross Anatomy, 3 hrs. Laboratory: Completion of large vessels of abdomen above linea terminalis; two cross-sections.
131. Gross Anatomy, 3 hrs. Laboratory: Diaphragm; iliopsoas; quadratus lumborum.
132. Developmental Anatomy, 4 hrs. Lecture and Laboratory: Nervous system.
133. Gross Anatomy, 3 hrs. Laboratory: Completion of lumbar plexus. Talk: Gross anatomy of a nerve and adaptations to function.
134. Gross Anatomy, 4 hrs. Laboratory: Pelvic peritoneum; surface of pelvic viscera of both sexes.
135. Gross Anatomy, 3 hrs. Laboratory and Talk: General features of bony pelvis.
136. Gross Anatomy, 7 hrs. Laboratory: Perineum, including ischio-rectal fossa in both sexes. Demonstration: Female perineum.

137. Developmental Anatomy, 4 hrs. Test on anatomy of ten and fifteen millimeter pigs.
138. Gross Anatomy, 4 hrs. Laboratory: Male urogenital triangle.
139. Gross Anatomy, 2 hrs. Laboratory: Female urogenital triangle.
140. Gross Anatomy, 3 hrs. Laboratory: Midsagittal cut of pelvis; extra-organic gross connective tissue structures; blood vessels and lymphatics, in part.
141. Gross Anatomy, 4 hrs. Laboratory: Rectum; bladder; pelvic ureter; radiograms.
142. Microscopic Anatomy, 3 hrs. Laboratory: Rectum; bladder; pelvic ureter.
143. Gross Anatomy, 4 hrs. Laboratory: Male internal genital organs; cross-section of pelvis.
144. Developmental Anatomy, 1 hr. Lecture: Genito-urinary system.
145. Gross Anatomy, 5 hrs. Laboratory: Female internal genital organs; radiograms; two cross sections of pelvis.
146. Microscopic Anatomy, 6 hrs. Lecture and Laboratory: Female genital organs.
147. Microscopic Anatomy, 5 hrs. Laboratory: Male genital organs. Talk: Secondary sexual characters.
148. Developmental Anatomy, 4 hrs. Lecture: Migration, implantation, embryonic membranes. Laboratory: Embryonic membranes.
149. Developmental Anatomy, 4 hrs. Lecture and Laboratory: Fetal membranes, including placenta.
150. Gross Anatomy, 4 hrs. Laboratory and Conference: Visceral nerves and lymphatics of pelvis.
151. Gross Anatomy, 4 hrs. Laboratory: Completion of sacral and pudendal plexi and review from colored dissections.
152. Gross Anatomy, 3 hrs. Laboratory: Deeper muscles of pelvic wall; lumbar and pelvic joints.

PART III.

Gross, predominantly Neural Anatomy; Microscopic and Developmental Anatomy concluded.

153. Gross Anatomy, 4 hrs. Laboratory: Membranes of spinal cord; proximal parts of spinal nerves.
154. Gross Anatomy, 2 hrs. Laboratory: Scalp completed; calvarium.
155. Gross Anatomy, 7 hrs. Laboratory: Removal of brain; external origin of cranial nerves; meninges and their vessels; internal relief of cranium.
156. Gross Anatomy, 4 hrs. Laboratory: Midsagittal cut of head; nose; paranasal sinuses; radiograms; nasopharynx.
157. Gross Anatomy, 2 hrs. Laboratory: Eyelids; conjunctiva; lacrimal apparatus.
158. Gross Anatomy, 3 hrs. Laboratory: Orbit and contents. Talk: Structural adaptations for movements of eyeball; nerves.
159. Developmental Anatomy, 1 hr. Lecture and Demonstration: Eyeball.
160. Gross and Microscopic Anatomy, 4 hrs. Gross dissection of eyeball of ox; microscopic study of retina.
161. Gross Anatomy, 3 hrs. Laboratory: Pterygo-palatine fossa and contents. Talk: Paths of sphenopalatine ganglion.
162. Gross Anatomy, 2 hrs. Laboratory: Internal carotid artery in skull and adjacent nerves. Talk: Deep paths of visceral nerves in head completed.
163. Gross Anatomy, 4 hrs. Laboratory: Middle and internal ear; radiograms. Talk: Developmental and functional anatomy of ear.
164. Microscopic Anatomy, 2 hrs. Laboratory and Talk: Cochlea.
165. Gross Anatomy, 1½ hrs. Laboratory: Passage of cranial nerves through meninges and skull.
166. Gross Anatomy, 4 hrs. Laboratory: Review of cranial nerves on colored preparations.

Summer Work in Tropical Medicine for Medical Students*

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The Department of Preventive Medicine, College of Medicine, University of Cincinnati, has for some time noted the presence in the temperate zone of so-called tropical diseases. The epidemic of amebic dysentery at Chicago and the explosive outbreak of malaria near Cleveland during the past few years are cases in point. The development of inter-continental air travel will, in all probability, not only emphasize the present picture, but may alter it in such a way that the change will not be an improvement.

It is recognized that the training now offered by our medical curriculum is adequate for the majority of our students since it would be idle to expect men being trained for general practice to be versed in the vagaries and exoticisms of tropical medicine. Nevertheless, it was felt that it would be desirable for a small number of our students to have some practical training in the recognition and treatment of tropical diseases. Accordingly, through the cooperation of the School of Tropical Medicine at San Juan, Puerto Rico, it was arranged to bring a small group of carefully chosen students to Puerto Rico for laboratory work, hospital rounds and field work in tropical medicine.

Five men were selected to take the work. One was a graduate who had finished his internship and the other four had finished the work of the junior year. They were chosen on the basis of interest in the subject, knowledge of general medicine, but most important of all, adaptability to new environment. More will be said of this attribute later. The party sailed from New York on the S. S. COAMO of the New York and Puerto Rico Line, June 16, 1936, arriving in San Juan on June 21. The students were given two days to learn the city and get settled. Work began at 9:00 A. M., Wednesday, June 24.

The course was inaugurated by the department of pathology with a discussion of the general problem of disease in tropical countries and its pathological aspects in hot climates. Case histories were furnished each student and these histories were followed by the accompanying gross and microscopic specimens for each case. Additional discussion was furnished by the journals available in the excellent library of the school. Cases were rotated among the students so that each student had access to all cases before the period was concluded. Six days were devoted to this type of work and in the course of that time the following diseases were studied: malaria, schistosomiasis, yellow fever, leprosy, filariasis, dysentery and lymphogranuloma inguinale.

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With this work as a background, the students were taken to the hospital wards to observe clinical material under the Medical Director and his staff. The hospital is comprised of the departments of medicine, surgery and general pediatrics, all of which offer splendid opportunities for not only the study of tropical diseases, but also morbid states commonly encountered in temperate climates, but as modified by climatic conditions or what has been termed tropical physiology. Some of the cases seen clinically during these ward rounds were as follows: Schistosomiasis mansoni; sinusitis as a predisposing factor in unilateral facial paralysis; malnutrition; exogenous toxic peripheral vascular disease; ascariis and hookworm infestations; hematuria of unknown etiology; chromoblastomycosis and traumatic cases.

On July 2, we were the guests of the Director of the Insular Department of Health. The Department is modern in equipment and organization. We visited the pneumothorax stations used in the control of tuberculosis. In these stations as many as fifty operations for pneumothorax are performed each day. From these we proceeded to the tuberculosis sanitarium, an 800 bed institution, newly erected and seemingly very well administered. Next, we went to the Manicomio, a hospital of 1,000 beds for mental disease whose buildings and setting would place it in the ranks of the more beautiful of such institutions. The occupational therapy used with these patients was particularly interesting. The remainder of the day was spent at the leprosarium studying the different types of leprosy. The superintendent was most gracious in receiving us and we were permitted to take pictures of the patients, who were very willing to cooperate. Thus, we brought back to Cincinnati some worth while photographs of the most typical cases.

Work was resumed in the hospital wards on July 3. In addition to the regular group of morbid conditions, during this second session cases of sprue and myelogenous leukemia were studied. In addition, the Director discussed very thoroughly the clinical aspects of schistosomiasis and some of the problems in public health associated with the disease.

At this point, the work was interrupted for a rest period permitting a cruise to the Virgin Islands to visit St. Thomas and two cities in St. Croix,—Fredricksted and Christiansted. The afternoon of arrival back in San Juan was taken by the department of nutritional chemistry discussing the work being done on nutritional problems in the tropics.

The next morning, July 10, the party left in two automobiles for the interior to view at first hand endemic areas of schistosomiasis and malaria. We went via Caguas, Cayey and Guyama. We stopped at the Aguirre Central, a large sugar processing plant, where we were the guests of the medical officer in charge. He, with his associate and a visiting physician from Guyama, conducted a clinic and ward rounds in the hospital of the Central, where we saw cases of malaria, schistosomiasis, elephantiasis and a refractory carrier of typhoid fever. We were entertained at luncheon by the Medical Director and in the afternoon visited a typical irrigation lake with its communicating ditches

where a workman was catching infected snails, the intermediate host for *Schistosoma mansoni*. We took motion pictures of the catching including close-ups of the snails.

From the Central Aguirre, we proceeded to Ponce where, on July 11, we were escorted through Dr. Pila's Clinic by the chief surgeon and his associates. Here, we saw more cases of dysentery and elephantiasis. The most striking cases seen at this clinic were in the pediatric division where we saw examples of extreme starvation in children. To escape the heat of Ponce, we went on to Coamo Springs where we spent the night. The next day we returned north across the island by a different route, via Juana Diaz, Coamo, Villalba, Manati, Vega Baja, Toa Alta and Bayamon, with frequent stops at points of sanitary significance, where the professor of nutritional chemistry from his immense store of knowledge concerning the island made each stop very worth while.

July 13 was devoted to work in the library, reading the literature on diseases already studied. The library contains more than 200 current scientific periodicals in addition to a superb collection of books.

Clinics in dermatology came on Tuesday and Saturday mornings and were attended even during the medical ward rounds. They were conducted by the professor of dermatology, and cases and causative organisms of the most common tropical skin ailments were studied. Among these were: epidermophytosis rubrum, lichen planus, lupus erythematosus, folliculitis, neurodermatitis, varicose eczema, psoriasis universalis and chromoblastomycosis.

On July 15, the Director of the School gave a discussion of the parasitology of tropical diseases, which inaugurated the work in parasitology. Laboratory work was done on both known and unknown specimens. The known ones were studied first so that the students might become familiar with the technique of findings eggs, etc. Then, unknown specimens, many of which were examples of multiple infestations, were submitted to the students for diagnosis. Work covered the following organisms: *Schistosoma mansoni*, trichuria, hookworm, *Fasciola hepatica*, *ascaris*, taeniae, *Hymenolepis nana*, malaria, *Balantidium coli* and *Endamoeba histolytica*.

The haematologic aspects of tropical disease were presented by the professor of hematology with a discussion of the four important causes of anemia in the tropics; schistosomiasis, sprue, hookworm and malaria, from the standpoint of the blood picture. Blood films of a case of sprue were prepared and studied and later this case was observed clinically. The last ward round was devoted to sprue and a review of the cases seen previously with notations of progress. In addition, two new cases of carbon tetrachloride poisoning were seen. These were from a labor camp and had been caused by massive dosage of the drug as an anthelmintic.

Pathological specimens were collected and brought back to Cincinnati to be added to our collection. These were in the form of tissue blocks, each of which will yield many sections. Parasitological specimens were also included in this collection.

At the end of the session, the party visited Governor Blanton Winship at his official residence, the Fortaleza, where we were permitted to wander at will through the rooms and gardens. We sailed for New York on the S. S. COAMO July 23, arriving on July 27. All of the party returned in good health. A motion picture record on 16 mm. film was made of certain high lights of the trip.

DISCUSSION

This was in the nature of a pedagogical experiment and we who had a hand in the making are well satisfied with the result of the first trial. The cooperation and cordiality extended to us could not have been exceeded anywhere and we are indebted to the professional men in Puerto Rico who gave so abundantly of their time and talents.

It would seem that the ideal student to be offered such opportunities is one who has finished the work of the junior year in medicine. He has completed his fundamental work in the microscopic techniques and, in addition, has had experience in physical diagnosis and contact with patients. Senior students are usually unavailable because of commitments to internships.

From a teaching standpoint there are questions to be raised. There is the alternative arrangement whereby instead of the approach by way of subjects, the field might be entered by way of disease. For example, malaria might be studied first, observing the various aspects of the disease from field, through clinic to autopsy until a completed picture of the biology of this particular disease had been presented to the student. There is much to be said for this attack, but, on the other hand, it would require an organization and timing which would be too much to expect of men who are not only teaching but who must devote much of their time to clinical activities the extent of which cannot be predicted in advance. For this reason, it would seem to be more practical to use the subject approach inasmuch as it permits the teachers to budget their time to better advantage.

An obvious hiatus in the course was the lack of any work in entomology. This was caused by the absence of the professor of that subject and not by any misconception on our part of the significance of entomology in the field of tropical medicine. No one would deny that the subject merits all the time that can be spared for its study. Another point which made itself painfully apparent was the lack of opportunity for the students to become better acquainted with phases of work in public health or other fields which may have interested them individually. This was due, of course, to the lack of time, and this, in turn, was determined by the effort to keep expenses as low as possible. The budget allowed for each student was \$300, covering all expenses from Cincinnati and return, and all students remained within that budget. Extraordinary expenses, such as hotel bills, transportation, etc., on field trips were borne by the Department of Preventive Medicine, University of Cincinnati, and the School of Tropical Medicine, San Juan, from their respective budgets. Future trials of the experiment would, no doubt, effect a better balance within the curriculum, although it is impossible to achieve very much in this respect without extending the time and thus increasing the cost. The provision of dormitory facilities, however, would make it possible to lengthen the stay considerably at the same expenditure.

The outstanding value of the course to the student rested in the smallness of the group which gave the teaching an intimate flavor resembling the old clinical clerkship. This would be lost if the group became too large and, in addition, there is the housing problem which, at present, is not too easy to solve for larger numbers to say nothing

of the limited space on shipboard at minimum rates. We feel that the experiment was a distinct success and offer the suggestion that it may point to a future important function of similar training areas in the tropics.

By long odds, the most important point in any such teaching is the selection of the men, and it is not possible to overemphasize this feature. It is not enough that a student has high grades, or technical facility, or even an intense interest in the subject. Above all, he must either have, or have the ability to develop, that intangible quality—breadth, courtesy, tolerance, urbanity—call it what you will, which marks the civilized gentleman the world over. There is a particularly virulent form of provincialism which breaks out in all its unpleasantness when the possessor is transported to foreign soil, and this must be guarded against as one would guard against the great pox. These students must not only live together rather intimately under conditions of variable stress, but they must meet a different people, culture, language and social pattern, and it is imperative for everyone concerned that they be able to do this in a manner becoming to a gentleman. The quality of their poise in the presence of Bacchus and Terpsichore is just as important as their bedside manner. To ignore this is to court difficulties which may be costly and the cost may well fall on those not responsible for the error.

The peoples of the tropics are, in general gentle, kindly and courtly, and to meet them with anything that remotely smacks of thoughtlessness is a piece of stupidity which should never be charged to any institution of higher learning or its products, even though an attempt be made to excuse such action on the grounds of unknowingness. Our political, economic, humanistic and sanitary horizons loom to the southward and it behooves us all to know and understand our neighbors.

Some Problems in Medical Ethics and Economics*

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The study as well as the practice of medicine becomes increasingly complex. The acquisition of new knowledge is slowly but persistently pushing back the horizon of the unknown, so that the last generation has witnessed a transformation of empirical medicine into something which more nearly approaches the dignity of an exact science.

It is natural that you who stand on the threshold of our profession should be fascinated and engrossed with the vision of possibilities gradually unfolding themselves to you. The task before you of absorbing the knowledge already available, coupled with the realization of the vastness of the yet unknown, in the exploration of which your generation must play its part, constitutes a challenge to all the intellectual energies of which you are capable.

But this is only one phase of the practice of medicine for which you are preparing yourselves. There is an art as well as a science of medicine, which leads into the field of human relationships which is as complex and as fascinating as that of science itself. Indeed, I doubt not that with many of you it was the appreciation of the possibilities in this field of medicine which dominated your choice of this profession.

The eagerness with which medical students look forward to their clinical courses testifies to this appeal, and with all due appreciation of our dependence on basic scientific knowledge, I trust that our medical schools will always maintain as their principal objective the preparation of students to apply this knowledge to the treatment and prevention of diseases, and to develop physicians who will be the bearers of service to human beings in sickness and in distress.

One might be tempted to think that this acquisition of medical knowledge and its practical application was task enough with which to confront the overworked medical student. And yet, it is my object today to turn your attention to still other aspects of the field of human relationships in the practice of medicine, with which students, as a rule, have little concern but which have a very practical bearing on the future road which you hope to travel.

Those of us who have gone farther on this road have learned that in this field of human relationships there are important contacts other than the obvious ones between physician and patient, which involve the responsibility of the physician to the community, as a whole, as well as the professional relations of physicians with each other.

*Address delivered at the opening exercises of the academic year 1936-1937, Columbia University College of Physicians and Surgeons.

These relationships to the community broaden the responsibilities of physicians to include many problems not directly involved in diagnosis or the treatment of the individual patient. They comprise all of the various problems of the preventive, the social and the governmental aspects of medicine, and the indications are that with your generation these problems will be pressing for solution even more insistently than they are at present.

In their relations with each other, physicians not only have to meet the more ordinary situations involving personal and professional courtesy, but also more difficult ones, such as those involved in specialism and group medicine in practice, and the participation in the activities of so-called organized medicine which are designed, primarily, for the preservation and promotion of higher standards of medicine and of the health and welfare of the community.

It is manifestly impossible to discuss all of these subjects within the limits of this address, so that from this field, as a whole, I desire to direct special attention to some of the ethical and economic problems involved.

This is not an effort to divert your attention from the main task which lies before you, which is to acquire proficiency in the scientific and clinical phases of medicine, but, rather, I wish to suggest that you keep in the background of your consciousness during these student days a realization that in the application of your knowledge to the practice of medicine you will be called on to meet many situations not covered in the curriculum, and that much of personal satisfaction, happiness and success, as well as the prestige of our profession, will depend on how these are met.

The Principles of Medical Ethics as set forth by the American Medical Association opens with this paragraph:

"Our profession has for its prime object the service it can render to humanity; reward or financial gain should be a subordinate consideration.

The practice of medicine is a profession. In choosing this profession, an individual assumes an obligation to conduct himself in accord with its ideals."

This is an epitome of all systems of medical ethics since the time of Hippocrates; the ideal of service rather than that of reward.

I feel certain that, consciously or unconsciously, you have already adopted this standard for your future professional conduct. I trust that you realize that the practice of medicine is a noble profession but a poor business, and that as you come face to face with the implications of this fact you will not be warped from this ideal. There are many pitfalls in the way, I propose to discuss some of them with you.

PROFESSIONAL RELATIONS:

Passing over the problems which arise in individual relationships between physician and patient, we will consider more particularly those problems which have to do with the profession, as a whole, in its relation with the community.

When you graduate, each of you becomes automatically a unit in that body known as organized medicine, which is represented by the county, state and

national associations. There are many other medical societies, and it has become much the fashion to prefer their activities to the neglect of those of organized medicine. This is very unfortunate, for the organized societies are those which officially interpret the relations of members of the profession to each other and to the community at large. In these days of change and unrest, many new problems arise, and if they are to be solved in accordance with our professional ideals, those who stand for these ideals must take their share of responsibility for their maintenance.

For the profession, as a whole, the questions of medical ethics and economics which we are today discussing are largely in the hands of these organized societies supposed to represent the collective body of opinion of physicians. If the leaders of the profession in their individual communities neglect their group responsibility, there is a real danger that the best thought of the profession may not be expressed adequately.

Organized medical societies are not trade unions. While it is a part of their duty to uphold the rights and privileges of the medical profession, their main responsibility is to maintain for the profession the standards of practice, of conduct and of service to humanity which we profess.

It is to groups of students like yourselves that we look for the future leaders in medicine. I trust that in the midst of the busy lives ahead of you, many of you will find time to meet these responsibilities to the profession as a whole.

There can be no doubt that many of our difficulties arise from economic pressure. The average income of physicians the country over is very low, not over \$5,700 (that of general practitioners is only \$4,000); also, at the present time, the names of many physicians are on the relief rolls. It is one thing to be strictly ethical when circumstances are comfortable; it is quite another to resist temptation when poverty is staring one's family in the face; yet, it is just this that our code demands.

One approach to the problem is a survey of the number and, especially, the better distribution of physicians. There certainly is overcrowding in many communities, especially in the larger cities, while in many rural communities medical services are very inadequate. For example, in New York City, the number of physicians per 100,000 inhabitants is 186. In many rural communities it is as low as from 75 to 80 per 100,000 population. These are problems for medical schools as well as for organized medicine to solve. Certainly, the depression, by closing many normal avenues of productive effort, has tempted many students who might be better fitted for other work to continue their studies in the professions, and it would appear that we are turning out more physicians, on the whole, than are needed, and, certainly, we have no need for any increase in the number of those of inferior quality. It is a time for a thorough searching of heart on the part of all such students to make certain they are on the right track, as well as for added vigilance on the part of medical school authorities.

Another important problem is the development of specialism. The field of medical knowledge has become so extended that it is impossible for any one man to encompass it. It is a natural consequence to narrow the field and to intensify one's effort in some one special direction. On the whole, this has made for definite progress, but it has also developed definite weaknesses. Not the least of these is the loosening of the personal bonds of contact between patient and physician, and also the inequitable distribution of compensation between general practitioners and specialists. This has developed a trend toward the assumption of the specialist designation by many not properly qualified, and to a competition for patronage, which, if not unethical, is certainly not dignified.

This unequal distribution of compensation and this competition have led to one of the great evils of modern practice. I refer to secret rebates, commonly known as fee splitting. This practice, though unknown in many communities, has, undoubtedly, become very common in our large cities. It introduces frank commercialism into medical practice; is demoralizing to a degree, and is contrary to all of the professed ethics of our profession. It is, however, the direct result of the inequalities of compensation, the development of specialism, the competition between specialists, and the struggle for existence which has been accentuated by the recent depression. This undercover evil gradually saps the moral consciousness and is one of the most insidious tendencies toward commercialism in medical practice today. It can only be solved by a sympathetic understanding of the economic pressure which causes it, in many instances, combined with a ruthless elimination of the frankly corrupt elements in the profession. I fear that this is one of many unsolved problems which my generation will pass on to yours.

Before leaving the question of specialism, may I take this opportunity to emphasize the importance of a broad foundation of medical training on which all satisfactory specialism must be based. A premature limitation of interest narrows one's outlook and cramps the possibilities for development. Whatever may be your present individual predilection, I beg of you not to neglect these opportunities of your student days, which may never come again, for obtaining a comprehensive understanding of all aspects of medicine, leaving special studies to develop naturally and later from a wider experience. If in so doing, many of you, now ambitious to become specialists, find yourselves gradually entangled in the fascination of general medicine, it may prove to be a blessing to yourselves as well as to many of your future patients who deeply regret the passing of the general practitioner.

HOSPITAL AND DISPENSARY RELATIONS.

Another medical problem with economic implications has to do with hospitals and dispensaries.

I do not need to emphasize to this group the extraordinary service rendered to the community by institutions like this splendid Presbyterian Hospital, of which we are so proud, or of our great city hospitals such as Bellevue, where

we, the other half, live. Yet, these have been and are the object of severe criticism, and that from the representatives of the medical profession itself.

The main point of attack has been on what has been designated the abuse of hospitals and dispensaries by patients who are able to afford private medical services.

This criticism is, undoubtedly, not entirely unmerited, and simple justice to the physicians who have spent many years, often at great sacrifice, to qualify for the practice of medicine, which must of necessity be their sole source of income, demands that every reasonable effort be made by those in authority to limit these institutional services to those individuals for whom they were intended. While much is being done in this direction, it is very probable that much more could and should be done.

My own reaction to this situation is that it would largely correct itself if the public was assured of the same standards of service from private physicians, in general, that they expect to find in these medical institutions. I cannot bring myself to believe that large numbers of people, with means adequate to pay reasonable fees, would elect to wait for hours in crowded dispensaries or choose the lack of privacy incidental to their care in general wards, unless they thought that they were getting something better in diagnosis or in treatment, which is much more precious to them than money. If this idea has any merit of truth, then the solution of this problem lies in the improvement of private medical practice. The practical application of this to you, who are students today, is that you will be the practitioners of tomorrow, and if you and your fellows throughout the country will always maintain the standards of service that you have learned in the hospitals when you go out into private practice, then, in another generation, this hospital abuse problem will disappear and you yourselves will be the richer for it, both in pocket and in professional satisfaction.

Another point of criticism is directed at the unpaid medical services rendered in hospitals and dispensaries. If placed on any, even a conservative, financial basis the value of these services amounts to many millions of dollars, which, if added to the budgets for hospital maintenance, would constitute an apparently impossible burden.

It is, of course, true that free services represent an enormously valuable contribution to the community, quite out of proportion to that rendered by any other profession. The practice, however, has grown up as an integral part of the tradition of our profession and has been accepted as one of our privileges as well as responsibilities. It furnishes an important part of our claim that we are governed by an idealistic concept of our duties, and is the basis for a considerable portion of the high esteem in which the medical profession is generally held by the community at large.

If it were possible to place these services on an adequate compensation basis, which is extremely doubtful, would we not, as a group and individually, lose more in intangible assets than we would gain materially? Also, I do

not need to remind you that in our hospital service we all receive great compensation through experience and professional prestige, the value of which is difficult to calculate but which makes hospital appointments so eagerly sought for without thought of financial compensation.

There is, however, one phase of this problem which is well worthy of serious consideration by hospital authorities. I refer to the desirability of offering modest financial honoraria to the younger medical members of the staff during their early years of service. These subordinate positions do not carry with them so much of prestige, and entail much routine work, often not very remunerative from the standpoint of experience and training. Such compensation as I suggest would do much to lessen the burden of the struggle to obtain a foothold in practice and would eliminate some of the present temptations to commercialism. The city hospitals are already making beginnings in this direction, which might, with advantage, be adopted gradually by private institutions, especially in the dispensaries.

The remainder of our discussion of the field of human relationships will deal especially with wider community problems. These I will present briefly in three categories: (1) social service; (2) preventive medicine and public health, and (3) governmental relations.

SOCIAL SERVICE: You are familiar with the great advantage resulting from the development of social service departments in hospitals and dispensaries. There is, however, I believe, too great a tendency to delegate this service to the social workers, with a frequent lack of social-mindedness evidenced by physicians who, in order to meet their responsibilities fully, must consider the combined medical and social problems involved in many cases and particularly those of chronic disease.

The study of home and family problems, including those of emotional stress, an investigation of the living, working and economic conditions with which our patients are surrounded, often illuminates difficult clinical pictures and may point the way toward proper and adequate treatment. If you will consistently develop an interest in these not strictly medical problems during your student days and continue that interest throughout your future medical practice, you will not only be rewarded by the satisfaction of rendering better service to your patients but you will develop in yourselves that broad human understanding indispensable to a truly great physician.

Not only is this true of relations with individual patients, but also, by increasing your knowledge of community activities in social, economic and industrial fields, you will immeasurably broaden your horizon of interest and of culture and will become not only better physicians but better citizens. Such a widening of our professional interests would be one of the surest guarantees of an eventual wise solution of many of the social and economic problems with which we are today confronted both within and without the profession.

2. PREVENTIVE MEDICINE AND PUBLIC HEALTH: Still another phase of our professional relationships has to do with public health and the practice of preventive medicine.

No longer is it possible to fulfill all of our obligations by strict adherence to the individual relationships between physician and patient. We have a great opportunity to help keep people well, as well as to care for them after they become sick. We have in the past largely neglected this opportunity; perhaps, because of faulty training or from a too narrow conception of our duties. This is bound to become a great field for the future, which will also offer opportunities for much additional economic advantage to our profession.

This part of our task brings us closely in contact with official public health agencies which we should support heartily in their efforts to improve the health of the community, and with which we should co-operate closely. What a wonderful power we, as a body, could exert in this field if each physician constituted himself a health officer for the families under his care, detecting and correcting physical defects; following up sources of infection in syphilis, in diphtheria and in other infectious diseases; following up the contacts in cases of tuberculosis, and, in general, in every way co-operating closely with our health officials to prevent disease!

This is the challenge of preventive medicine to your generation, and to you the public health and industrial field of medicine opens great and attractive opportunities for specialized service, which in these days of professional insecurity in private practice may well be worthy of your consideration when you come to choose the particular path which you will follow.

3. GOVERNMENTAL RELATIONS: And, finally, we come to consider our relationships with government.

We are already familiar with some such contacts, as in public health departments and public hospitals. But, there are serious tendencies in governmental activities, which may, in the future, markedly affect the private practice of medicine and may, possibly, profoundly modify its character.

A small but vociferous group frankly advocates socialized or state medicine, with the profession controlled by some governmental body, and with all physicians placed on salaries taken from public funds.

Other activities are more insidious, as, for example, the operation of the Workmen's Compensation Act. These laws have the very commendable object of protecting the individual workman from the hazards of industry and placing the economic burden of occupational disease and accidents on the industries instead of on the individual workman. They have done much good, but in their operation there have developed many serious unethical practices in which members of our own profession, as well as of that of the law, have been unpleasantly conspicuous, and the governmental supervision through the Department of Labor has frequently been inadequate to control them.

Also, during the depression we have seen an insidious extension of state supervision of medical service in the administration of medical care for those on home relief. Organized medicine through the country societies has been a great help in coordinating these activities, protecting the rights of the profession and preserving the standards of medical service.

But, the really burning question of the moment has to do with health insurance.

The present discussion of health insurance resulted from certain studies which showed a very inequitable distribution of the financial burdens of illness, an unequal and often inequitable compensation to physicians, the unequal and inadequate provision of medical services in many communities, and greatly disproportionate cost of notoriously ineffective instruments of treatment, such as proprietary and patent medicines, as compared with the cost of suitable and adequate medical and hospital care.

All of us who practice medicine are well aware that long illness is a great burden, often a crushing one, on our patients, and we have long been accustomed to adjust our own services and their cost to existing circumstances. All fair minded laymen recognize the fact that, as a profession, our aim and ideal has been the provision of services rather than insistence on adequate financial compensation. That there are exceptions to this rule also, we all know. But in our hearts, we are assured that we cannot, in fairness, allow the motives of our profession, as a whole, to be impeached.

The consciousness of this fact should not lead us, however, to contend that because, in general, we know that our motives have been generous and fair, consequently all is well and no changes are desirable or necessary. It is very probably true that with the improvement in general social conditions in the United States there has also been an accompanying improvement in the character of medical service, and very likely, as has been claimed, no country in the world enjoys better medical service than does the U. S. A.

But this is far from sufficient. The progress we have made is an incentive and challenge to further improvement, and it would appear from recent studies and analyses of the situation as it affects medical practice in this country that the need for such improvement does exist.

The great body of well informed medical opinion in this country opposes governmental health insurance as a remedy for these conditions—because of the weakening of the bonds between physicians and patients which would result; because of the inherent dangers of political and bureaucratic control, and, particularly, because they believe that this plan would lower rather than improve the medical and ethical standards of practice.

Now, it may very well be that as the recent world-wide tendencies are further extended, we are in for regimentation in medicine as well as in other fields of social activity. If we believe that this is undesirable in the practice of medicine, we must have grounds for the faith which is in us, and this can result only by giving careful thought to this whole question of medical care. If we are true to our professional standards, we must approach the problem from the standpoint of the best service to the community rather than from that of individual or professional selfishness. That this question should be settled right is, indeed, of vital importance to our profession, but even more so to the people whom we aim to serve.

Necessarily, this has been a very cursory survey of some of the social, economic and ethical problems of present day medicine. I bring it to you simply as a little leaven which may, perhaps, work helpfully in your consciousness as you pursue your studies in the medical school and finally take your places in the ranks of our profession.

We may take it for granted that you will make every effort to perfect yourselves in the scientific and clinical branches of medicine. The thought I wish to convey to you is that this knowledge alone may utterly fail you unless quickened by the spirit of idealism and of service to humanity.

As I face groups of undergraduate students from year to year, I am deeply conscious that they have this spirit of idealism, and I feel that you have it. But in some of my former students I have seen the spark flicker and go out. It is very sad and, perhaps, it may happen to some of you. I only hope that I may have said something which may put you on your guard.

The road is not easy, temptations to self-interest, to carelessness, to sharp practices or even to those which are definitely unethical will often beset you. If I were to suggest a formula for your guidance it would be a persistent effort to develop through all of your professional contacts that sympathetic understanding of yourselves, your fellows and your patients, which makes for integrity of character and for the highest expression of that rare gift of God, personality. This is truly the power of the spirit, against which mere material forces will break in vain.

This brings us back to our original fundamental premise that the true practice of medicine must be based on an ideal of self-sacrificing devotion to the service of others. Attain this, and you will have your reward! You are heirs to a noble heritage in the profession of medicine. Hold fast to your ideals! **HOLD FAST!**

At the close of one of his memorable addresses to physicians, one of the great masters of American medicine, Doctor Edward Livingston Trudeau, himself an inveterate idealist in the face of overwhelming odds, gave us this message which I would like to leave with you:

"Let us not, therefore, quench the faith nor turn from the vision which, whether we own it or not, we carry, as Stevenson's lantern bearers their lanterns, hidden from the outer world, and, thus inspired, many will reach the goal; and if for most of us our achievements inevitably must fall short of our ideals, if when age and infirmity overtake us we come not within sight of the castle of our dreams, nevertheless, all will be well with us; for, as Stevenson tells us rightly, to travel *hopefully* is better than to arrive, and the true success is in labor."

The Internship*

VICTOR RICHARDS
San Bernardino, California.

The most critical period in the medical student's career begins in the early part of his senior year. In the first days of October a notice from the Dean's office posted conspicuously on the bulletin board advises the student to begin looking for an internship, thus sounding the death knell of carefree student days. The bulletin is a summons to action, to go out and find a job. No student will dare to trifle with such a summons, for it presents visions fraught with the gravest consequences to the future. The poor choice of a hospital for internship may ruin the brightest prospects, while the good choice may assure a happy and successful professional life.

As a general rule the notice on the bulletin board is followed by "counsel full of sap" given by the various heads of the departments, warning and cautioning the students what to take and what to avoid. Unfortunately, there is no unanimity of opinion among the various heads regarding the best choice, for as in all other matters of judgment "a Hair perhaps divides the False and True". Some professors maintain only a straight internship should be selected. It is asserted by them that the rotating internship goes back to the days when students saw the patients only in classroom demonstrations, and did not have the opportunity to study them individually in the wards. Nowadays, they claim, the student serves a rotating internship while going through school, particularly during the junior and senior years, in which the student rotates through all the various medical and surgical fields spending a month to 10 weeks in each. It is also asserted by these professors that the first two or three weeks of an intern on a new service are valueless both to the intern and to the hospital, for at least that period of time is necessary for the intern to learn how to do the routine procedures in accordance with the whims and caprices of the supervising doctors.

Others maintain with equal cogency that during the junior and senior years in the medical school the student's mind is only confused with the "turbid ebb and flow" of a million worthless, purely theoretical ideas, which he must memorize in order to pass the course. The student is not taught to judge and reason for himself; he has no understanding of what he is doing; he has merely filled his head with a hodge-podge of incomprehensible gibberish, without rime or reason. The students have not prepared themselves for anything in particular; they are only puffed with conceit, stupidity, and presumptuousness, but unfit and unapt for any particular professional work. "They are acquainted with Galen, but know not the disease." Undoubtedly, the great Latin epistolarian Seneca had such students and schools in mind when he said: "Non vitæ, sed scholæ discimus—we learn not in preparation for life, but for the

*Mr. Richards is a junior in the Stanford University School of Medicine.

school." Such wind-puffed students when they complete their senior year are helpless without at least one additional year of a rotating internship in a good hospital where they can acquire some superficial knowledge of the practical aspects of the various fields of medicine.

The next difficulty that presents itself to the student completing his senior year in the medical school is the kind of hospital that he should select: teaching or non-teaching hospital. In a teaching hospital one learns how to prepare himself for the practical life of the physician, how to do things correctly, how to distinguish between a shirt and a doublet, as Moliere would say, how to tell measles from mumps, and when not to remove appendices needlessly.

In the non-teaching hospital it is claimed that the student is given a chance to do something for himself, to acquire and use independent judgment, to use his head and hands, and not merely to gaze in wondrous amazement at terror-striking pedants who ruthlessly supervise and mercilessly satirize the ineptitudes of the young medical school graduates. At best it is claimed by the advocates of non-teaching hospitals, that teaching, wherever it is done in a hospital, is of the most mediocre kind. While much progress has been accomplished in other fields of education by departments set for the purpose of supervising instruction, teaching in hospitals has never received any attention and has been most neglected, so as to render it practically worthless. The teachers have little time to devote to the proper training of interns, for they are mostly occupied with the training of undergraduates.

The greatest difficulty, however, which the student encounters, after having long cogitated upon the solution of these perplexing problems, is how to get any internship at all. Most students begin early in October to send out letters to various hospitals. All kinds of schemes are resorted to in order to find a job. There is considerable pulling of strings by those who know how and where to pull; and, strange as it may seem, those students who are lowest in the class ranking very frequently get the fattest jobs. It is the general custom among hospitals to send application blanks to anyone who applies for them with the result that one hospital may have as many as 300 applicants for each internship that it has to offer. The application blanks present the greatest variety of form. In general, questions are asked regarding the age, race, religion, health, marital status, and educational qualifications of the applicant. It is, of course, essential that the applicant have desirable racial characteristics and agreeable religious affiliations. Some hospitals require that the student fill out the application form in his own handwriting. Others require that the student should sign the following statement: "Should I be appointed, I pledge myself to serve the entire period of my appointment, obey all the rules and regulations of the hospital, and faithfully and promptly perform all duties assigned to me." It is the general custom among the hospitals to require at least two letters of recommendation with the application. Some hospitals insist that the Dean of the medical school endorse or approve the application before giving it any consideration. The competition is so keen that some superintendents select applicants on the basis of a competitive examination. Other superintendents are

so generous as to call for neither recommendations, photographs, nor examination, but rely merely upon the statement of the applicant that he has fulfilled all requirements. The students in the upper third of the class are generally looked upon with envy by the middle or lower third brethren, although it doesn't necessarily follow that the upper third group will meet with the best success either in the finding of a good internship or later in their professional life.

It is of paramount importance to the welfare of our nation that the young graduate in medicine should enter on the practice of his profession thoroughly imbued with the highest principles of ethical standards in which he has been nurtured by his professors during the course of his medical education. He should feel from the very first day of his internship that he is in a fraternity of men of high and noble ideals, and that if he is to succeed in life he must subscribe wholeheartedly to the great principles of unselfish service to the community. The first steps on the sacred ground should be free from killing cynicism, free from any feeling or thought that the first start was achieved not by merit but by other deprecatory influences. Scholarship, personality, special aptitude for the work and not racial, religious, political, social or fraternal affiliations should constitute the basis of intern selection. It would undoubtedly be desirable to enlist more fully the cooperation of such an agency as the Association of American Medical Colleges, which is already doing good work by means of its Intern Placement Bureau, to assist students worthy scholastically to secure internships in approved hospitals. This would help to remove the distress and humiliation of the present somewhat unethical struggle for internships which often leads to futility and chaos and does not serve the best interests of the community or of the nation.

Ave*

ELIAS P. LYON

Dean Emeritus, University of Minnesota Medical School
Minneapolis, Minnesota

Ave, Mr. Toastmaster, President Coffman, Dr. Mayo, Ladies and Gentlemen, *Ave*, and shall we add *morituri Salutamus*?

There was a time when I looked upon that phrase, the salutation of the gladiators, as the epitome of pessimism, the deepest depth of degradation of the human spirit. Later I changed my mind. I came to the conclusion that gladiators were too valuable to be killed off indiscriminately. Some of them rose to consequence. My guess is that their occupation was little more dangerous than football, and that they had a good time—got their names in the papers, so to speak! Their salutation to me has no ominous connotation.

However, the phrase seems inappropriate for us oldsters who are about to retire. Perhaps, indeed, some of us would put it oppositely: "We who are about to live, salute you." We ought to have a good time from now on looking at the show and slyly criticizing the performers. Anyway, I prefer the sententious truth of Maeterlinck, "There are no dead."

The latter phrase should indeed be the motto for teachers. It is their tacit belief that their daily work lives on in their pupils, repeating itself in endless generations, that is their chief inspiration. "No life can be pure in its spirit and strong in its strife and not all life be purer and stronger thereby" was the somewhat florid and verbose way in which the same thought was expressed in a poem I used to read. To name it would mark me as having been a romantic and impressionable youth. I would not wish this fact to get out.

I am proud that I have been a teacher. I am sure that all of us retiring now to the dugout after the best game we knew how to play are proud to have been teachers. For me this choice of profession was made quite early—by the age of twenty certainly, perhaps two or three years earlier. It was chance that determined that most of my years should be spent in medical education, but it was deliberate choice that led me to prepare myself for teaching and engage in teaching as a career.

I think I could make a good case that teaching is the most useful and noble of all the professions. "There are no dead" implies that the influence of all men goes on, reverberating as it were, through all succeeding ages. But the professional teacher meets young and impressionable minds in conscious effort to cut into them an ineffaceable writing. The very nature of this contact must mean that he leaves more behind than the average man of equal ability in some other occupation.

*Remarks made by Dr. Lyon at a testimonial dinner to retiring members of the faculty, June 10, 1944
Dr. Lyon died suddenly on his way from Florida where he spent the winter.

I could argue that teaching is the most satisfying profession. My old chief, Jacques Loeb, used to state that the joy of life comes chiefly from the exercise of the instinct of workmanship. He deplored that for many, perhaps most humans, the instinct of workmanship has to be sacrificed for the most imperative instincts for food, clothing and shelter, and the instinct of procreation.

By the instinct of workmanship or instinct of labor he meant employment at what one likes to do. I often wondered whether for many people this means doing nothing. Perhaps it does. If so, it in no way lessens the truth of Loeb's dictum or the tragedy of its non-fulfillment. It is probably quite as unhappy an experience for some men to give up doing nothing as it is for us who love teaching to give up teaching. But surely we may claim that the satisfaction of this instinct in us is more essential and useful to the world.

At any rate I am convinced that many people fail in the realization of this most precious human possession, the instinct of work; that the world holds many a "mute, inglorious Milton"; that frustration and unhappiness are common. These cannot come to one who teaches and who loves to teach.

I could also make a good case that the teacher is most sure of his livelihood, most free from worry, has more social security, is less crushed by competition, has a more sanely spent leisure than almost any other profession. But I leave you to fill in your own thoughts on these matters, for most of you here are teachers.

As to research and teaching, I do not find them such separate and conflicting fields as many seem to think. Indeed I think the researcher who has students around him is perhaps the highest type of teacher. I have indicated on another occasion my deep felt conviction that science lost rather than gained when Loeb quit the university for the research institute. I say integrate research and teaching, but be careful that in enthusiasm for the former the latter does not fall into the background.

Some years ago you, Mr. Toastmaster, read to me a poem. I asked for a copy and have it still in your handwriting. I had it typed and from time to time have passed out copies—one only the other day to Dr. Gortner. It is entitled "Why I Teach."

Because I would be young in soul and mind
Though years must pass and age my life constrain,
And I have found no way to lag behind
The fleeting years, save by the magic chain
That binds me, youthful, to the youth I love,
I teach.

Because I would be wise, and wisdom find
From millions gone before whose torch I pass,
Still burning bright to light the paths that wind
So steep and rugged, for each lad and lass
Slow climbing to the unrevealed above,
I teach.

Because in passing on the living flame,
 That ever brighter burns the ages through,
 I have done service that is worth the name
 Can I but say "The flame of knowledge grew
 A little brighter in the hands I taught,"
 I teach.

Because I know that when life's end I reach
 And thence pass through the gates so wide and deep
 To what I do not know, save what men TEACH
 That the remembrance of me men will keep
 Is what I've done; and what I have is naught,
 I teach.

(LOUIS BURTON WOODWARD.)

And now I come to that other side of me which perhaps has been more in the view of those who planned this meeting. For I am a double faced man, a teacher and a dean.

My being a dean was as accidental and unplanned as my being in medical education. We who went from the University of Chicago and other schools to the newly formed St. Louis University School of Medicine in 1904 faced a strange situation. That old University—the oldest in the Mississippi valley—had taken over two recently united proprietary medical colleges, the Marion Sims and the Beaumont. The doctors who controlled these schools drove a hard bargain with the good Jesuit fathers by stipulating that they should retain their chairs for a period of nine years. For that time they were to constitute the faculty and no new members could be added without their consent. The result was that Eycleshymer and Shoemaker in Anatomy, Thompson in Pathology, myself and colleagues in Physiology were members of the University faculty but not of the Faculty of the Medical School in which we taught. It was only after two or three years that we were finally voted into the medical faculty. Even then we were looked upon with some hostility and suspicion.

In 1907 the dean, a part time clinical man, suddenly resigned. The old time owners of the school constituting a large majority of the faculty claimed that they had the right to name the new dean. The University on the other hand pointed out that this prerogative had not been reserved to the faculty in the transfer. The latter view prevailed, and the University authorities declared that one of us fundamental laboratory men—their own appointees—must take the job. The lot fell upon me.

You can imagine the situation. I headed a faculty over whom I had no real jurisdiction. The only bright spot was the whole time laboratory group who like myself were professional teachers. Practically all our efforts had to be put forth in strengthening the fundamental departments. From time to time as death or resignation intervened something could be done on the clinical side. As for the rest it consisted in seeking able young men for subordinate positions and in improving the student body. I came to believe that only on a firm foundation in science and full time teachers in both scientific and practical branches

can a medical school be built or do the work for which it exists. I came to know student problems as very real individual human problems that deserve the best human judgment and the sympathy of a god.

I think it was this experience at St. Louis which convinced me that the best progress in human institutions as in the inorganic world is by slow evolution rather than cataclysm. The situation here in 1913 when I inherited a recently completed "reorganization" emphasized the same thought. If any central idea has characterized this administration it has been this of slow growth through evolution. Indeed I think most of our mistakes and difficulties in these twenty-three years have come from occasional bursts of impatience, occasional premature explosions of zeal for rapid realization of ideals.

I commend these thoughts to you who sometimes bewail that progress is slow, who see so much to do, so much untouched: "The petty done, the undone vast." Have patience, build confidence. Someday things will come. Look back to 1913; picture the medical school as embracing Millard Hall and the Institute of Anatomy, each partially completed (as Anatomy is still); of the Elliott Hospital of eighty beds standing remote and alone; of a budget of only \$225,730 for the School, \$79,600 for the Hospital, and keep up your courage.

The second idea characterizing these years probably bases in inherited characteristics of my own personality. I am not a bumptious person, have no over confidence in my own judgment. The result perhaps is that we have been more a cooperative group than might otherwise have been the case. I am proud that on the whole we have worked together. No one can claim any personal glory. This which you celebrate tonight is in no sense a personal show. So far as it represents a review it is of the common heritage of a group who look back on a quarter century of united effort. For myself I feel tremendous gratitude to all of you, a group of friends united for an ideal. What has been done we have all done together. That on the whole is better than any one-man triumph, however great it might be.

I am tremendously proud of our young men. Many of them are our own product. We have not been too fearful of the bugaboo of inbreeding. Indeed, why should we when we see that every one of them has added to what we could give him the best that the world afforded in other places? Just now our new head of medicine is away gathering ideas for the new psychopathic institute—an addition, by the way, which we long talked about, worked for and which finally came. Our new dean is one of our boys.

In a talk on one occasion, I characterized the dean as upstander in a circus. The faculty stand on his shoulders and the President is at the top waving a flag. The metaphor fails to express the actual relation of faculty, dean and president, but I was always glad to state that my faculty were soft footed, and did not dig in their toes, and that my presidents were steady on their feet and not given to upsetting the pyramid. I say it again before all of you. It is a notable characteristic of Minnesota.

In other matters the metaphor is pretty good. The dean must have a fairly sturdy pair of legs; must be able to resist some pressure. But resiliency and elas-

ticity are more important than great strength. A little battered but still breathing I am glad now after twenty-nine years of deaning to leave the circus ring and retire to the Valhalla of deans, where the 'lumni "cease from troubling and the weary are at rest."

As for the rest, I may only say that I have had a good life—we all have had a good life together. If the dean has been important, it has been as a sort of universal oiler, an eliminator of friction, a greasing expert. In fact I often call attention to the significant similarity of dean and diener. And I think the best dean I know of was Gunga Din, who you remember was the regimental water bearer.

I think the portrait is fine—almost, one might say, a spittin' likeness. I congratulate Mr. Brewer. In fact, I am thinking of leaving a small endowment to provide an occasional hair-cut. I know in one respect it will be a grand success where I have sometimes failed. It will keep its mouth shut.

However, my innermost thought, as you may infer from what I have said, is that the picture should have been a composite of all of us. Such combination would always create interest, not to say amazement, perhaps consternation. Imagine Dr. Beard's whiskers, Scammon's mustache, my wiry mane, O'Brien's polished dome!

Since this grand idea did not occur to your committee I accept with grateful thanks the more personal honor. Mind you I am not ashamed of my job, but I think it has been only a small part of the much larger job we have done together. Minnesota's Medical School is a first class institution. It is no one man's monument. It stands for all who have worked here from Millard, first dean, to the last teaching fellow.

Stephen Leacock who recently retired at McGill has written interestingly on "I shall stay in Canada." I shall stay in Minnesota. If I can edge in on something useful to do, I shall be glad. If not, I shall cheer from the ring side when two years from now our beloved school enters upon its second half century.

The Dean is dead. Oh! Prince of Diehls! Long live the Dean. Thus is the "deanasty" preserved.

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Elias Potter Lyon

The announcement of the sudden death of Elias Potter Lyon, former dean of the University of Minnesota Medical School, came as a distinct shock. Dr. Lyon was retired by the age limit in June, 1937, but continued his researches in the field of medical education with unabated interest until the time of his death which occurred on or about May 3 on the journey home from Winter Park, Florida, where he had spent the winter engaged in literary research.

With the passing of Dr. Lyon, who was president of the Association of American Medical Colleges in 1913-1914, and always an active participant in all deliberations, there disappears from the scene another of the medical educators whose influence for better conditions, more freedom in administration and the right to engage in educational experimentation was very potent. He will long be remembered for his high powers of keen perception and discrimination and for his wit which was appreciated by all who have had the pleasure of hearing him speak. Dr. Lyon's last public utterance, on the occasion of his retirement as dean at Minnesota, will appear in an early issue of this JOURNAL.

* * *

Student Exchange Between American and German Medical Schools

In order to establish fraternal relationships between the medical schools of the United States, German university medical schools are desirous of bringing about an exchange of medical students and teachers. At the University of Heidelberg, Professor Rothenwald, director of the Hygienic Institute of the University, has been appointed "Leiter des Austausches" (director of exchange).

The proposed plan is to place a German medical student, with a high grade of scholarship and who speaks English, in an American medical school for one or two semesters, and have an American student do likewise in a selected German medical school. Every medical student in Germany must serve one year of internship—"medizinischer Praktikant"—before he is graduated. The German university authorities are willing that this service be done abroad. Some of their students are serving internships now in England, Belgium, South Africa and elsewhere. It is desired that the United States be included and that some of our students serve internships in German university hospitals. It will also be possible for an American to serve a year—or more—in one of the justly famous pathologic institutes in Germany in lieu of an internship or in addition thereto, if desired. Several graduates of American medical schools are at the present time taking advantage of this opportunity.

It is also desired that there be an exchange of professors or of teachers of any rank between the United States and Germany. Naturally, it is desired that the incumbent be able to speak German although this is not a requirement because so many of the German medical students speak English; in fact, instruction in English is being stressed strongly in German schools today with the result that nearly all graduates of the Gymnasium speak English fairly well.

Similar opportunities are also available in the University of Vienna and there a student and teacher exchange is strongly desired. The government authorities in Germany are wholeheartedly in sympathy with this plan and are ready to grant American medical students a stipendium to make it possible

for them to live in Germany for the period of the exchange. It is possible that fellowships may be available in the United States for foreign students to help them to defray expenses. Inasmuch as exchanges pertaining to internships already exist with England, it should not be difficult to extend the service to Canada.

Details as to all of these services may be obtained by writing to the headquarters of the Association of American Medical Colleges.

* *

Review of Medical Licensure

The Journal of the American Medical Association, April 24, 1937, presents another interesting and informative report on the results of licensing examinations in the United States. The report includes not only the medical schools of the United States but also those of Canada and all foreign countries.

The "examinations" on which the report is based doubtless include many examinees who made more than trial at securing licensure. Applicants appear before more than one board to ensure licensure, and, often, the applicant who fails in one examination may repeat in the same state or try in some other state. Therefore, the "examinations" may include many such applicants for licensure. Of the 5,705 examinations of graduates of U. S. medical schools, 4.3 per cent resulted in a failure of securing a license to practice.

Eleven of the sixty-eight medical schools of the United States are reported as not having had any failures among their graduates; 24 had up to 3 per cent of failures; 7 had from 3 to 5 per cent failures; 16 had from 5 to 8 per cent failures; 5 had from 8 to 13 per cent failures; 1 had 15.2 per cent failures; 1 had 21 per cent, 1 had 21.8 per cent and 1 had 22.5 per cent failures, respectively. Many of the failures were made in the New York State Board examinations.

Of the nine medical schools of Canada, 3 had no failures; 1 had 4.5 per cent; 1 had 7.4 per cent; 1 had 15 per cent; 1 had 20 per cent, respectively, and 2 schools had 50 per cent failures—probably because of language difficulties. The total percentage of failures for the Canadian schools was 12.5.

Foreign medical schools were represented by 588 examinations; 35.4 per cent resulted in failure. More than one-half of these examinations were taken before the New York State Board; nearly 40 per cent resulted in failure.

It is notable that today only thirteen medical schools in the United States and four in Canada require an internship for graduation. Nineteen state examining and licensing boards demand the internship for licensure, including Alaska and the District of Columbia. Seven of these nineteen states do not have a medical school within their jurisdiction. In nine states and the District of Columbia a certificate in the basic sciences is a prerequisite to a license to practice medicine. The percentage of failures in this examination for 1936 was 13.7 among 1,032 examinees. Three states without medical schools require this examination. In only three of these states does the examination cover identical subjects. All examine in anatomy, pathology and physiology; two examine in diagnosis.

Many other interesting features are covered in this report for which the original should be consulted.

* *

John Wyckoff

June 1, 1937, John Wyckoff died. He leaves behind a host of sincere friends every one of whom will mourn his loss with a heavy heart. Dr. Wyckoff was a fine man—sincere, kind, very friendly, cheerful, yet forceful, a good administrator and a real physician in every sense of the term. His charming and inviting smile won him many friends. "Jack" was a lovable person.

Since 1925, when he was assistant dean at the former University and

Bellevue Hospital Medical College, he has attended the meetings of the Association of American Medical Colleges. He took a keen interest in the proceedings and could always be counted on to take charge of every responsibility imposed on him. Finally, he became dean. During his incumbency of that office he made a notable record as an administrator and as a teacher. He was professor of medicine for many years and his name is not unknown in the literature on medicine and medical education.

In 1934, at the Nashville meeting of the Association of American Medical Colleges, he was chosen president-elect, assuming the presidency at the close of the Toronto meeting in 1935. He was also elected chairman of the Executive Council at that meeting. He discharged the duties of both offices faithfully and with credit to himself and to the Association.

With a heavy heart, we placed his likeness with the group of twenty-three presiding officers of the Association who preceded him to the Land Beyond, making the twenty-fourth in a group of notable and distinguished men who gave much to the cause of medical education in the years gone by. May his soul rest in peace.

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Entrance Requirements of Medical Colleges

A check of the entrance requirements of the 77 medical schools in the United States which participate in the studies made by the Association of American Medical Colleges each year, shows that there is an increase in the minimum set up for admission to these schools. One school definitely requires a bachelor's degree, although a few schools whose minimum published requirements are 2 and 3 years, have a sufficient number of applicants with bachelor degrees so that selection can be made out of this group only. In two instances, it is stated that exceptionally well prepared applicants who do not have more than 2 years of college work will be accepted. Thus, 2

years is the actual minimum for acceptance.

Forty-two schools, 54.4 per cent of the whole number, demand a minimum of 3 years of college work; 27 schools, or 35.1 per cent, are on the 2 year college basis. Seven schools (9.1 per cent) have requirements which lie between 2 and 3 years of college work: 85, 72, 70, 65, 64 (2) and 62 hours, respectively.

In this connection, attention must be called to the fact that while 44 per cent of the schools are on the minimum 2 years of college work basis, including the 7 schools which demand somewhat more than 60 hours but less than 90 hours, each year the number of applicants accepted who have less than 3 years, or 90 hours, is less than for the preceding year. Of the present (1936-1937) freshman class, only 10 per cent had less than 3 years or 90 hours, and they are to be found in a comparatively small number of the medical schools who demand only 2 years of college work.

Of the 77 medical colleges, 29 (37.6 per cent) are the schools of medicine of a state university. Of these 29 schools, 16 (55.2 per cent) demand a minimum of 3 years of college work; six of these schools are schools offering only the first and second years of the medical course. Thirteen schools, 44.8 per cent, demand the minimum of two years of college work. Only one of these schools is a two year school of medicine.

Thus, the matter of increasing the entrance requirements to medical schools from 2 to 3 years of college work is solving itself without special action. A study of the accomplishment of medical students shows that the students who have had only the minimum of preparation, 2 years of college work, do very creditable work in the medical school. They stand next to the A.B. students. True, they are a very carefully selected group of students, but if 3 years had been insisted on, doubtless a great hardship would have been placed on these students and many good students could not have entered a medical school at all,

or, at least, without additional time spent in college. There seems to be unanimity of opinion among the executives of schools on the 2 year basis that the requirements for admission should not be increased at this time—if at all. After all, entrance requirements are not set up for the purpose of stressing "hours" or "credits" but to make possible the selection of persons who are believed to be mentally fitted to study medicine and who will make good practitioners. The number of hours or years of previous study should not be determinants in selection; a good "education" should be the important factor in selection.

* *

Student Accomplishment Composite Report

A composite report of the accomplishment of freshmen medical students for the years 1930 to 1935 inclusive, a six year period, recently was sent to the deans of the medical schools of the United States. The report shows how the students from the various arts colleges represented by the group carried on in medical school. Although the highest number of arts colleges represented in any one year has been 615, included in the composite report are 937 arts colleges and 38,242 students. Some arts colleges are represented year after year; others are not. They appear on the annual lists only occasionally.

Of these 937 arts colleges, only 152, with 241 students, are shown to have a clear record over the six years. Only 128 colleges, with 575 students, did not have any student fail of promotion. Of these 575 students, 377 had a clear record; 198 had encumbered records, i.e., subject conditions or failures.

The largest number of students coming from any one college in the first or clear record group was six. Most of the colleges were represented by only one or two students. In the second group, the largest number of students coming from one college was 38 with 22 clear records. Twelve of these 128

colleges were represented by 186 students, or 30.6 per cent of all of the students in this group, and 139 of these students, or 74.7 per cent, had a clear record. Of the 937 colleges represented in the report, 280 did not have any students fail, or 29.9 per cent of all colleges. But these 280 colleges were represented by only 816 students, or about 2.13 per cent of the 38,242 students included in the report. The remaining 657 colleges all had failing students, some of them a considerable number.

This report should prove to be a valuable aid to medical schools in the selection of students and also to the arts colleges in appraising their deficiencies which are responsible for the failures of their students in the medical school.

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Elias Potter Lyon; A Practical Idealist

In the death of Elias Potter Lyon, former Dean of the Medical School of the University of Minnesota, the profession of Minnesota has lost a man to whom it owes a debt of gratitude for services whose value can hardly be overestimated.

He was born in Cambria, Michigan, on October 20, 1867. He graduated from Hillsdale College in Michigan and migrated to the University of Chicago where he studied physiology under the great Jacques Loeb, and carried on important investigations in comparative physiology. He received his Ph.D. degree at the University of Chicago in 1897. He was Assistant Professor of Physiology at Rush Medical College, from 1900 to 1904, after which he became Professor of Physiology at St. Louis University and Dean of the St. Louis University Medical School in 1907. In recognition of his services to the medical school, St. Louis University conferred upon him the degree of M.D. in 1910 and LL.D. in 1920. Dr. Lyon was President of the Association of American Medical Colleges in 1913 and 1914 and Chairman of the Section on Pathology and Physiology of the Amer-

ican Medical Association in 1934 and 1935. He was Dean of the Medical School of the University of Minnesota from 1913 until his retirement at the age of 68 in June 1936. Dr. and Mrs. Lyon spent the winter of 1936 to 1937 in Winter Park, Florida and while returning from Florida to Minneapolis Dr. Lyon suffered from an attack of cardiac weakness and died a few hours later at Trafford, Pennsylvania.

He came to Minnesota in 1913 to the Administration of the Medical School, to convert it from an old style school whose only adequate department was that of Pathology to a real modern medical school which, in both teaching and research, would rank among the best in the country. The Department of Anatomy and Physiology were enlarged and regenerated, Pharmacology and later Bacteriology were created and adequately staffed as separate departments, Physiological Chemistry was created a separate division with a greatly enlarged staff. In the course of a few years the clinical departments were placed upon a full-time basis with large staffs of scientific clinicians. Modern methods of teaching replaced antiquated methods in every department, in every department research was stimulated to the utmost, and under his leadership the Medical

School acquired an atmosphere of productive scholarship which was stimulating both to the members of the faculty and to the medical students.

Always foremost in his mind were the ideals of science and humanity. He was utterly free from self-aggrandisement, self-seeking, and petty politics.

He subordinated his own opinions and welfare to those of others whenever he felt that to do so was in the interest of science and of progress. His kindness and sympathy were unlimited; and every member of the faculty, every worker in the buildings and every student who was beset by difficulties or misfortune during Dean Lyon's administration has reason to remember him with gratitude.

To us in Minnesota he brought the ideals of his great teacher, Jacques Loeb, the greatest physiologist of the generation that has passed on. By his own efforts, his sympathy and his cooperation, Elias P. Lyon made possible the development of a great Medical School at the University of Minnesota. It remains for us, who live after him to carry on those ideals and to keep the torch of Science ever burning brightly where he placed it above the portals of the Medical School.

—A. D. Hirschfelder.

College News

State University of Iowa College of Medicine

Beginning with the academic year 1938-1939, the requirements for admission will be increased from 60 hours to 90 hours of college work, and the grade point level on all collegiate work will be raised to 2.2 (from C) and to 2.2 in the subjects of biology, chemistry and physics taken as a unit (formerly, C).

♦ ♦

University of Chicago Medical Schools

A new building for the care of contagious diseases, to cost \$500,000, will be added to the University Clinics. It will adjoin the Billings Memorial Hospital. It will be known as the Charles Gilman Smith Hospital. The money is provided by a trust fund established in the will of Mrs. Harriett G. Smith.

♦ ♦

Tulane University of Louisiana School of Medicine

Dr. Erwin E. Nelson, professor of pharmacology in the University of Michigan Medical School, has been appointed head of the department of pharmacology.

♦ ♦

University of Manitoba Faculty of Medicine

Dr. Ian MacLaren Thompson, professor of anatomy, University of California Medical School, has been appointed professor of anatomy, succeeding Dr. J. C. B. Grant, now at the University of Toronto.

♦ ♦

Johns Hopkins University School of Hygiene and Public Health

Dr. Kenneth F. Maxcy, professor and head of the department of preventive medicine and public health, University of Minnesota School of Medicine,

Minneapolis, has been appointed professor of bacteriology, effective July 1. He succeeds Dr. William W. Ford, who has held the position since 1920 and is retiring on account of the age limitation. Dr. Maxcy graduated from Johns Hopkins University School of Medicine in 1915. He resigned as professor of preventive medicine and bacteriology at the University of Virginia School of Medicine, Charlottesville, to accept the position at Minnesota in 1936. Recently he was appointed to a three year term with the International Health Division of the Rockefeller Foundation as one of the scientific directors.

Dr. Adolf Meyer, professor and director of the department of psychiatry, was guest of honor at a meeting celebrating his forty-fourth year in psychiatry and twenty-seven years as head of his department.

♦ ♦

Washington University School of Medicine

Dr. E. V. Cowdry, professor of cytology, delivered the annual address of the Kappa Chapter of the Phi Sigma Society at the University of Kansas on May 13th. His subject was "How Living Cells Manage Their Social Problems."

♦ ♦

University of Illinois College of Medicine

Dr. George E. Wakerlin, professor of pharmacology and physiology in the University of Louisville School of Medicine, has been appointed professor and head of the department of physiology, succeeding Dr. Maurice B. Visscher, who is now at the University of Minnesota.

Dr. Erich Hoffmann, of the University of Bonn, Germany, delivered a lecture on syphilis, May 11.

*Louisiana State University
School of Medicine*

New Appointments: Dr. Bela Halput, assistant professor of pathology; Dr. Joseph Stasny, instructor in pathology. Dr. Eric von Hamm has resigned to accept a position in Ohio State University in the department of pathology as chairman and professor.

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*Indiana University
School of Medicine*

Establishment of a course in public speaking has been recommended by a committee appointed by the dean, Dr. Willis D. Gatch, to study the subject. It was further suggested that a committee be appointed to confer with a committee from the faculty at Bloomington to explore ways and means to arrange such a course harmoniously. The primary purpose of the course, which would include training in the use of both the written and the spoken word, would be to produce physicians able to write and speak properly before assemblies of physicians or laymen. The committee is composed of Drs. Maurice Joseph Barry, chairman, Thurman B. Rice and Edgar F. Kiser.

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Jefferson Medical College

Dr. Louis H. Clerf, formerly professor of bronchoscopy and esophagoscopy, has been elected professor of laryngology and bronchoscopy. In addition to his present duties, Dr. Clerf will assume the duties formerly discharged by Dr. Fielding O. Lewis, who has been made emeritus professor of laryngology and consulting laryngologist to Jefferson Hospital.

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*Northwestern University
Medical School*

Dr. Max Cutler, associate in surgery, will serve as visiting professor in surgery in the Peiping Union Medical College, and will conduct a tumor clinic under the auspices of the Rockefeller Foundation.

*Loyola University
School of Medicine*

A medical historical museum is being established. A portrait of the late William C. Austin, Ph.D., professor and head of the department of physiologic chemistry at the school, has been presented to the school's library.

A course in psychobiology will be given for the freshmen, and one in psychopathology for sophomores as a preparation for the study of psychiatry.

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Medical College of Virginia

In connection with a celebration of the two hundredth anniversary of Richmond and the centennial of the Medical College of Virginia, an exhibit is being prepared to show to the public as well as to the medical profession the progress of medicine in Richmond during the city's history. Dr. Wyndham B. Blanton is in charge of the exhibit, which will be set up in the Richmond Academy of Medicine and in the library of the Medical College of Virginia. Individual exhibits will include old and modern sick rooms and operating rooms, photographs of Richmond physicians, old and modern instruments, medical books used in Virginia, medical photography and illustrations. Richmond hospitals and clinics will have booths to show their work and development, and the college itself will have several booths demonstrating its history and its work. The exhibits opened May 15 and continue through September.

Mr. Howard W. Blakeslee, Science Editor of the Associated Press, was the speaker at the ninety-ninth commencement exercises of the college, held June 1. There were 82 graduates in medicine.

Promotions: Dr. Emmett H. Terrell, professor of clinical proctology; Everett H. Ingersoll, Ph.D., associate professor of anatomy; Dr. Paul Kimmelstiel, associate professor of pathology; Dr. Emanuel U. Wallerstein, associate professor of otolaryngology; Dr. James P. Baker, Jr., Dr. Kinloch Nelson and

Dr. John H. Scherer, assistant professors of medicine; Dr. Ernst Fischer, associate professor of physiology and pharmacology; Dr. Andrew Stephens Graham, assistant professor of surgery; Dr. Randolph H. Hoge, assistant professor of surgery and gynecology; Dr. Thomas D. Jones and Dr. James B. Stone, assistant professors of pediatrics; Dr. George Z. Williams, assistant professor of pathology; Dr. John Blair Fitts, assistant professor of orthopedic surgery; Dr. Donald M. Faulkner, associate professor of orthopedic surgery and chief of clinic; Dr. Henry Page Mauck, professor of clinical orthopedic surgery.

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*University of North Dakota
School of Medicine*

Dr. Harley E. French, dean, was guest of honor at a dinner given by students and alumni celebrating his twenty-fifth anniversary in the deanship.

♦ ♦

*College of Medicine
University of the Philippines*

Dr. Antonio G. Sison, professor of medicine, has been appointed dean to succeed Dr. Fernando Calderon, who retired in October, 1936. Dr. Sison graduated from University of Pennsylvania School of Medicine in 1908. He is a former chairman of the medical division of the Medical Research Council of the Philippines and has been president of the Manila Medical Society and the Philippine Islands Medical Association.

♦ ♦

*St. Louis University
School of Medicine*

Two gifts have been received from anonymous donors to aid in cancer research and treatment. One consisting of 705 acres of farm land, valued at about \$75,000, in Mississippi County, Ark., will not be available for use by the school until the death of the donors; the second is \$7,000 to purchase radium for the benefit of indigent cancer patients. According to the report, the fund

will be sufficient to purchase 180 mg. of radium in the form of needles and accessory equipment with servicing for five years. It will be named the Margaret and Elizabeth Radium Service and is open to donations from other persons. This will be the first radium the school has owned; its supply has been rented in the past. The income from the land will be used to establish a foundation for research on cancer. Both gifts will make it possible to augment the cancer program at the school, which is under the supervision of Dr. Albert E. Casey, associate professor and chairman of the department of pathology and other members of the cancer study committee: Drs. Charles F. Sherwin, chairman, Goronwy O. Broun, John Grey Jones, Lex G. McCutcheon and Norman Tobias.

♦ ♦

*New York University
College of Medicine*

New Appointments: Dr. Harry Stoll Mustard has been appointed Hermann M. Biggs professor of preventive medicine and director of the laboratories of preventive medicine to fill the chair left vacant by the retirement of Dr. William Hallock Park who becomes professor emeritus.

Dr. William Smith Tillett has been appointed professor of bacteriology and director of the bacteriological laboratories.

♦ ♦

*University of Alabama
School of Medicine*

Dr. Thomas Herbert Patton, Tuscaloosa, lectured on medical ethics and economics recently. The lecture was the first in a recently established annual lectureship on this subject.

♦ ♦

*George Washington University
School of Medicine*

Dr. Vincent du Vigneaud, professor of biochemistry, has been awarded the Hillebrand prize for 1936 by the Chemical Society of Washington.

Yale Medical School

Gifts amounting to about \$170,000 were announced by the Yale University Corporation. They included \$67,916 from the Rockefeller Foundation for immediate use in the university for research and publication, \$6,750 from the Josiah Macy Jr. Foundation for medical science research, \$8,459.57 from the Rockefeller Foundation for research in the medical school, \$4,900 from the Carnegie Corporation of New York City for photomicrography, and \$2,500 from Jeremiah Milbank of New York for poliomyelitis research.

Dr. Harvey Cushing will retire from the faculty in June. He has been Sterling professor of neurology since 1933.

♦ ♦

Vanderbilt University School of Medicine

The Abraham Flexner lectures were delivered by Dr. Thorvald Madsen, director of the State Serum Institute of Denmark, on March 10, 15, 19, 24 and 29. His topics were: "Control of Venereal Diseases in Denmark;" "Mechanism of Bacterial Infection;" "Epidemiology of Tuberculosis;" "Influence of Seasons on Infections;" and "Whooping Cough."

Dr. R. S. Cunningham, professor of anatomy, has resigned to accept a similar position and the deanship at Albany Medical College.

Dr. R. H. Kampmeier has been appointed assistant professor of medicine, succeeding Dr. Seale Harris, Jr., who resigned.

An R.O.T.C. Medical Unit has been established in the school. Major George W. Reyer, U.S.A., a graduate of Vanderbilt, 1917, is in charge as professor of military science and tactics.

♦ ♦

University of Michigan Medical School

Dr. Charles W. Edmunds, professor of materia and therapeutics, has been selected Henry Russell lecturer for 1937 under an endowment established in 1925 in the will of the late Henry Rus-

sell "to honor and reward that member of the faculty who is declared to have accomplished the work of the greatest scholarly distinction during the year past."

Promotions: Dr. Russell Nelson De Jong, to assistant professor of neurology; Dr. Ruth C. Wanstrom, to associate professor in the department of pathology; Dr. Walter Giersen Maddock, to associate professor of surgery; Dr. Norman R. Kretzschmar, to associate professor of obstetrics and gynecology; Dr. Richard H. Freyberg and Dr. John McFarland Sheldon, to assistant professor in the department of internal medicine.

♦ ♦

Tufts College School of Medicine

Dr. Dwight O'Hara, professor of preventive medicine, has been appointed vice dean to assist Dean Stearns.

A local chapter of the American Association of Medical Students has been formed. It will take part in the Student Activities Plan of the School.

♦ ♦

University of Virginia Department of Medicine

At the meeting of the University of Virginia Medical Society held April 5, Dr. Paul B. Barringer, former professor of physiology at the university, spoke on the subject of "Medical Reminiscences."

Dr. Sidney Burwell, dean of the medical school of Harvard University, gave the Alpha Omega Alpha address on the occasion of the public initiation held April 12. He spoke on the subject of "Changes in the Circulation in Constrictive Pericarditis."

The Committee on Research of the American Philosophical Society has made a grant of \$1,000 to Dr. Alfred Chanutin, professor of biochemistry, for technical assistance in connection with his investigations on kidney function.

Dr. P. S. Hench, of the Mayo Clinic, spoke on the subject of "Gout" before the University of Virginia Medical Society on May 6th.

*University of Mississippi
School of Medicine*

Dr. Robert M. Moore, assistant professor of pathology, University of Missouri School of Medicine, Columbia, has been appointed professor of pathology and director of clinical laboratory diagnosis, effective September 1, it is reported.

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*Duke University
School of Medicine*

April 26th, Dr. J. S. L. Browne, of the Royal Victoria Hospital, Montreal, lectured to the students and staff at Duke Hospital on "Studies of Sex Endocrine Physiology of the Female," and on May 3rd, Dr. David M. Davis, professor of urology at Jefferson Medical College, lectured on "Chronic Prostatitis."

During the winter quarter, Mr. Harold M. Horack, and during the spring quarter, Messrs. Thomas A. Gonder, Jr., and Albert F. Lee, of the senior class, studied in London.

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*University of Cincinnati
College of Medicine*

Among recent gifts received by the college are the following: \$20,000 from anonymous donors to remodel a ward at the Cincinnati General Hospital as an isolation and nutritional unit; \$1,500 for three years to establish the Justin A. Rollman Fellowship in Internal Medicine, department of gastro-enterology; \$4,000 from the family of the late Judge Jacob Shroder to equip a laboratory in neuro-anatomy.

Dr. E. A. Baber has been appointed assistant professor of psychiatry.

Dean Alfred Friedlander has been appointed superintendent of the Cincinnati General Hospital to succeed the late Dr. Harry H. Langdon. Dean Friedlander accepted this appointment as a temporary arrangement until a satisfactory permanent administrator can be found. He will donate his salary to the college of medicine.

*Columbia University College
of Physicians and Surgeons*

A gift of \$500,000 is announced to enlarge the facilities in laboratory equipment in connection with the plan for the development of graduate medical education. Eight stories are to be added to the west wing of the medical school.

Dr. Robert P. Ball has been appointed assistant professor of radiology.

Appointments: Dr. William H. Stewart, clinical professor of radiology; Dr. George Gray Ward, clinical professor of obstetrics and gynecology; Drs. Albert H. Aldridge and Ralph A. Hurd, assistant clinical professors of obstetrics and gynecology; Dr. Earl E. Van Derwerker, assistant professor of clinical orthopedic surgery; Dr. John E. Scarff, assistant professor of neurologic surgery.

Dr. Magnus I. Gregersen, professor of physiology in the University of Maryland School of Medicine, has been appointed professor and head of the department of physiology, effective July 1, 1937.

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*University of Georgia
School of Medicine*

Dr. G. W. McCoy, Medical Director of the U. S. Public Health Service, Washington, D. C., addressed the members of the Dugas Journal Club May 17th. Dr. McCoy discussed the "Relationship of Epidemiology to Public Health."

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*Wayne University
School of Medicine*

Dr. Thomas B. Cooley, professor of pediatrics, has been appointed executive secretary to the council for pediatric research of the American Academy of Pediatrics.

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Albany Medical College

Dr. Thomas Ordway, dean and professor of medicine since 1915, has resigned as dean. He will be succeeded by Dr. Robert S. Cunningham, until

now professor of anatomy in Vanderbilt University School of Medicine. Dr. Cunningham will also be professor and head of the department of anatomy.

Dr. John A. Sampson, chairman of the department of gynecology and obstetrics, and Dr. Arthur W. Elting, professor of surgery, have reached the retirement age. Dr. Sampson will continue as Alden March professor of gynecology.

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*Wake Forest College
School of Medical Sciences*

This school, formerly known as Wake Forest College School of Medicine, has adopted the designation "School of Medical Sciences." A precedent for this action is the name of the two year school of the University of Saskatchewan.

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*University of Oregon
School of Medicine*

Dr. Harold B. Myers, since 1917 professor of pharmacology and later also associate dean, died in March. He was a graduate of Western Reserve University School of Medicine.

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*University of Pennsylvania
School of Medicine*

Dr. Alfred N. Richards, professor of pharmacology, has been elected a trustee of the Rockefeller Foundation.

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*University of Toronto
Faculty of Medicine*

Medals, Prizes, Scholarships, Fellowships awarded: Sixth year—Faculty Gold Medal, K. J. R. Wightman; Faculty Silver Medal, W. L. M. King and A. W. Bagnall, B.A.; Ellen Mickle Fellowship, K. J. R. Wightman; Chapell Prize in Clinical Surgery, H. Hay-

ward; William John Hendry Memorial Scholarship in Obstetrics and Gynecology, J. D. Markham; Ontario Medical Association Prize in Preventive Medicine, D. G. H. MacDonald; Canadian Medical Institute Prize, H. C. Balmer.

Undergraduate — David Dunlap Scholarships, (a) Fifth year, A. Auerback; (b) Third year, J. H. Tritt; Ronald S. Saddington Medal in Pathology, D. H. Copp; Toronto Women's League of the United Synagogue, G. A. Lane; Baptie Scholarship, J. G. Mickler.

Graduate—Reeve Prize, G. E. Hall; Starr Gold Medal, L. Donohue; Alexander McPhedran Research Fellowship in Clinical Medicine, R. C. Dickson; Perry Goldsmith Prize in Otolaryngology, P. E. Ireland; Faulkner Medal in Psychiatry, G. E. Hobbs; George Armstrong Peters Prize, C. H. Watson; J. J. Mackenzie Fellowship in Pathology and Bacteriology, H. C. Hair.

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Western Reserve University

A bronze plaque in memory of the late Roger Griswold Perkins has been erected by his friends in the reading room of the Department of Hygiene and Bacteriology. Dr. Perkins was Professor of Preventive Medicine from 1910 to 1930 and Professor Emeritus from 1930 to 1936.

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*University of Minnesota
Medical School*

Dr. Edgar D. Brown, associate professor of pharmacology, has reached the retirement age. Dr. Gaylord W. Anderson, Boston, has been appointed professor and head of the department of preventive medicine and public health, succeeding Dr. Kenneth F. Maxcey, who went to Johns Hopkins.

General News

Continuing the Physician's Education

A regulation has been made by the Reichsaertzekammer of Germany that every practicing physician of Germany must take a three week postgraduate course once every five years in certain cities and under the direction of the "Kammer." A special program has been prepared for this course. Its object is to include in the course lectures and demonstrations which will bridge the gap of the five year period and give the physician opportunity to familiarize himself with progress made in medicine, both practical and theoretical. He will be shown new procedures, taught how to make use of them; informed of new developments in public health and community welfare; in short, "brought up to date." Specialists of acknowledged efficiency will be made aware of their relationship to medicine as a whole; will take review courses in subjects outside of their special field in order to make them conscious of the fact that they are, first of all, physicians; second, specialists. In theory, the program is an excellent one. It remains to be seen how it will work out.

During his absence from his field of activity, the physician is compelled to supply a locum tenens at his own expense, and he will pay 2.50 reichsmarks per day (\$1.00 according to the present valuation of the mark in Germany). He will be housed and boarded at the expense of the government. Professor Adam is in charge of the work.

* *

Medical Education

The American Foundation has just made public, in a two-volume, 1500-page report, the views of 2,100 physicians and surgeons on the present status of American medicine. The report—which appears under the title, *American Medicine: Expert Testimony Out of*

Court—summarizes the results of an inquiry among medical men begun by the foundation approximately nineteen months ago.

Miss Esther Everett Lape is credited with having made the survey.

Surprise has been expressed at the tremendous emphasis that falls on medical education in this report. Yet leading educators and many medical men outside the teaching institutions express the view that medical education is really the key to the solution of the problem of bettered medical care for more people.

The notable improvement in medical education during the past 25 years is duly recognized but the point is made that standards should be further raised, and, many feel, substandard schools closed by law.

Since the quality of the medical man himself is, many insist, the determining factor in the quality of medical care, ways and means must be found for getting the best men to enter medicine. The personnel of the profession will not be what it should be so long as some medical schools accept students of doubtful qualification because their tuition fees are needed.

There is lively discussion of whether the emphasis in premedical training should be on the humanities or on science. Some take the line that the premedical course should not have any stated content. Some believe its character and emphasis should vary according to the individual.

A question of major interest is whether medical education tends to over-stress laboratory technique and thus to produce the "super-scientist" rather than the clinician. Does medical education tend to neglect the training of the general practitioner? Some of those who discuss this question feel that while the old type of family doctor may be pass-

ing, a new and differently trained general practitioner will be the key man in the medicine of the future.

There is a good deal of reference to the need of better training in obstetrics. Obstetrical practice and training are regarded as far from satisfactory.

There is somewhat extended discussion, pro and con, on the need of giving psychiatry a larger place in the curriculum, and an animated difference of opinion as to whether this would or would not make the doctor able to deal more satisfactorily with the human entity rather than with a disease.

Whether the best teaching in medical schools is done by full-time teachers or by "famous specialists" in practice also strikes fire. There is some sincere reflection on the type of teaching that habitually stresses the rare and unusual case, without reference to the fact that the common ailments will probably constitute most of the young graduate's practice.

Postgraduate training is discussed, with varying degrees of faith in brief "brush up" courses, but with general conviction that ways must be developed to make it possible for men who have limited opportunities for clinical observation to keep up with important developments in diagnosis and treatment.

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Distribution of Physicians in Germany

In order to effect a more equal distribution of physicians in the Reich, the cities of Hamburg and Berlin have been closed to physicians desiring to enter on practice. It is said that Munich will soon be added to the list. Young graduates are encouraged to settle in small communities without a physician. The government will supply lists of available opportunities and indicate where physicians are needed. The young graduate will be given a choice of location within a certain prescribed district. In order to assure himself of a living, he must begin by serving as a "Kranken-

kassenarzt." For a population of 66,000,000 Germany has now about 55,000 physicians with the same unequal distribution as exists in almost every country, especially the United States.

* *

American Association of Anatomists Annual Meeting

The annual sessions of the American Association of Anatomists have always been noteworthy for their registration of significant progress in the morphological sciences, and this year was no exception. For the first time, the Association met in Canada, in the city of Toronto. The 151 papers were arranged in ten 3 hour programs, and six round table conferences; and it is obvious that often several papers—as many as six—would be in progress at the same time. The older medical men will hardly recognize the subject matter as anatomy, yet anatomy it is, and there has never been any infringement on the domains of physiology or any other science. All living animal structure lies in the field of anatomy, and not only this, but all functional changes, and even those referable to hereditary or environmental influence, belong there also. So we have in the 15-page program long lists of papers dealing with the endocrine tissues, with blood cells, with nerve elements—indeed with all parts of the body. Allen, of Yale, told of the remarkable effect of the drug colchicine on proliferating tissue in that it arrests mitoses in the metaphase, thus providing a much more accurate presentation of mitotic activity than would be available without its use, for the mitotic figures accumulate in large and readily appraisable numbers. This drug gives valuable service in cancer research.

Snyder, of Johns Hopkins, explained the respiratory movements of the fetus while still in the uterus, and showed pictures of lung alveoli containing vital dye injected into the amniotic fluid of the living mammalian foetus. It is evident that the amniotic fluid is of value in dilating the air chambers of the lung

before birth. Bloom, of the University of Chicago, announced his success in the passing over of lymphocytes into myelocytes. Windle, of Northwestern, explained, neurologically, some of the factors governing initiation of respiration. Madge Thurlow Macklin spoke on abnormal blood production in hydrops fetalis. Carey, of Marquette, had interesting presentations in the dynamics of histogenesis. So one could go on for many pages.

Last year the "round table conference" idea was tried and approved; and this year there were six "round tables." That of Cowdry, on blood capillaries, brought together Chambers, the Clarks and others to discuss the newer findings and technics concerned with endothelium, pericapillary cells and their behavior. Rioch of Harvard presided over a conference to consider "The structure of neurons and its functional significance," and here the neuron appeared in widely varying guise as it had been prepared by one or other of the modern technics, as by micro-incineration, or the Altmann freezing-drying method. When this discussion ended, the central nervous system was likened, on the one hand, to a sort of "reverberatorium," and on the other to a "soup kitchen." The first conception is based on modern views on the subject of conduction in self-re-exciting chains of internuncial neurons in reflex phenomena of long duration, as presented by Hinsey; while the second is influenced by the "soup," acetylcholine, which is found in nerve tissue. Dr. H. S. Gasser, Director of the Rockefeller Institute, introduced the subject matter for this conference, and participated in the later discussion, where he was joined by Ranson, Rioch and others. Modern genetics came frequently into the deliberations, as in the Round Table of Terry on gross anatomy, where Cummins and Danforth discussed dermatoglyphics and dissecting room material, respectively. Sperm production, the embryonic heart, and teeth formed other subjects for round tables.

At the annual dinner, the President,

Frederic T. Lewis, spoke on "The Fundamentals of Cell Shape," and McMurrich gave an account of two early Canadian anatomists. Professor Kappers of Amsterdam was an honored guest.

There were sixty special demonstrations, and an entire afternoon was devoted to the presentation of these. Seven reels of motion pictures were run off, including pinocytosis by malignant sarcoma cells by Warren Lewis of Baltimore, and the development of the salamander by Stone and Kramer of Yale.

From such a program it is obvious that anatomy has more than held its own in the progressive modern medical world. All such advances mean continuous adjustments in teaching curricula, and vigilant care on the part of medical school executives to the end that their Departments of Anatomy shall be provided with all that they need in men and means to enable them worthily to reflect the best in modern trends.

Charles C. Macklin.

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Mayo Foundation Lectures

A special program of lectures and demonstrations in surgery and medicine was held under the direction of the Mayo Foundation from April 6 to 9, inclusive. Mornings were devoted to surgical and medical clinics. In the afternoons and evenings, in addition to clinicopathologic conferences, symposiums were conducted on urology, cardiology, gastro-enterology, dermatology, endocrinology, diseases of the colon and rectum, orthopedics, and arthritis.

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German Physicians Visit America

A group of physicians from various cities of Germany, and representing various fields in medicine, visited the United States in May. Besides making sightseeing trips, they visited the Columbia University, Presbyterian Hospital Medical Center, the Memorial Hospital for Cancer Research in New York City, Jefferson Medical College and the

University of Pennsylvania School of Medicine in Philadelphia, the associated hospitals of the University of Chicago and the Cook County Hospital in Chicago, and the Mayo Clinic. The tour was organized by the Hamburg American Line and was sanctioned by the German government.

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American Board of Surgery

Acting on the invitation of the American Surgical Association, the following surgical societies cooperated in the creation of the American Board of Surgery: the American Surgical Association, the Section on Surgery, General and Abdominal, of the American Medical Association, the American College of Surgeons, the Southern Surgical Association, the Western Surgical Association, the Pacific Coast Surgical Association and the New England Surgical Society. The first three of these bodies, which are national in scope, have three representatives on the board. All the other societies have one representative each. The representatives of the cooperating societies are nominated by the society which they represent and on approval of the board shall become members of it. The term of membership on the board will be six years.

The following officers were elected: chairman, Dr. Evarts A. Graham; vice chairman, Dr. Allen O. Whipple; secretary-treasurer, Dr. J. Stewart Rodman.

Two groups of candidates are recognized for qualification by the board: (a) those who have already amply demonstrated their fitness as trained specialists in surgery, and (b) those who, having met the general and special requirements exacted by the board, successfully pass its qualifying examination.

The first of these groups, the Founders Group, on invitation by the board will be chosen from (1) professors and associate professors of surgery in approved medical schools in the United States and Canada, (2) those who for fifteen years prior to the board's organi-

zation have limited their practice to surgery, and (3) members of the American Surgical Association, the Southern Surgical Association, the Western Surgical Association, the Pacific Coast Surgical Association and the New England Surgical Society, who were in good standing January 9, 1937.

All applications for the Founders Group must be received within two years of the board's organization, January 9, 1937. No candidates will be considered after that date.

Requirements for those to be qualified by examination will be: 1. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association or graduation from an approved foreign school. 2. Completion of an internship of not less than one year in a hospital approved by the same council, or its equivalent in the opinion of the board. 3. Special training: A further period of graduate work of not less than three years devoted to surgery taken in a recognized graduate school of medicine or in a hospital or under the sponsorship accredited by the American Board of Surgery for the training of surgeons. This period of special training shall be of such character that the relation of the basic sciences of anatomy, physiology, pathology, bacteriology and biochemistry is emphasized. Knowledge of these sciences as applied to clinical surgery will be required in the examination. Adequate operative experience in which the candidate has assumed the whole responsibility will be required. An additional period of not less than two years of study or practice in surgery. 4. The candidate must present to the board sufficient evidence of good moral character as to justify it in the belief that he will not engage in fee splitting and other dishonest practices.

The qualifying examination will be divided into two parts: part I, written, and part II, clinical, bedside and practical. The written part, part I, will concern itself with general surgical

problems and with the clinical application of the basic sciences of surgery to these problems. This examination will cover a period of three hours each and will be held simultaneously in as many centers as are necessary to accommodate the number of applicants who are eligible. Part II is entirely oral and will also concern itself, in the main, with general surgery and, as stated for part I, clinical application of the basic sciences to the clinical problem represented. In addition to this, in part II an examination will be given to test the candidate's knowledge of operative surgery, x-ray plate interpretation and the principles and application of surgical anesthesia. This examination will be held in as many centers as the board may determine necessary to accommodate the eligible candidates. Reexaminations will be allowed, provided one year shall elapse between examinations.

The fee for group A, the Founders Group, shall be \$25. The fee for group B shall be \$75, payable as follows: \$5 for registration fee, which shall be returned if the candidate is not accepted for examination; \$20 for part I, and \$50 for part II. The same fee will be required for each reexamination. Once the candidate has become qualified, he will have no further financial obligation to the board.

The board will hold its first examination (part I, written) Sept. 20, 1937. All inquiries concerning applications for this examination should be received by the secretary's office promptly.

Requests for booklets of information, application blanks and other information should be addressed to the secretary, Dr. J. Stewart Rodman, 225 South Fifteenth Street, Philadelphia.

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Alpha Epsilon Delta Honorary Premedical Fraternity

Illinois Alpha Chapter was installed at Illinois Wesleyan University, Bloomington, May 21. Dr. Emmett B. Carmichael, professor of physiological chem-

istry at the School of Medicine, University of Alabama, and grand president of the fraternity, conducted the installation ceremonies. This marked the installation of the eighteenth chapter since the establishment of the fraternity at the University of Alabama in 1926.

Dr. William Spencer Carter, dean of the Medical Branch, University of Texas, Galveston, has been elected to honorary membership in Alpha Epsilon Delta Honorary Premedical Fraternity. Dr. Carter was the principal speaker at the Texas Alpha Chapter's Banquet for all Texas Premeds at the University of Texas, Austin. Three hundred and twenty premed students and faculty members from eight colleges and universities of Texas were present for the occasion. Dr. H. Y. Benedict, president of the University of Texas, acted as toastmaster and other guest speakers included Dr. C. H. Hanna, president of the Texas State Medical Association, Dr. W. H. Moursund, dean of the Baylor University Medical School and Dr. E. H. Cary, past president of the American Medical Association.

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Short Courses at Columbia

Postgraduate training may be obtained by general practitioners through the short courses offered in the Graduate School of the College of Physicians and Surgeons at Columbia University. Advanced courses for specialists are offered to enable specialists to meet the requirements of one of the national boards for the certification of specialists. In 1932 provision was made for the granting of the degree of Doctor of Medical Science (Med. Sc.D.) for residents at affiliated hospitals who spend part of their residency in the medical sciences, write an acceptable thesis and pass an examination. Credit is given those who have pursued graduate work in medical sciences or in a hospital residency recognized by the University.

Abstracts of Current Literature

What Is Minor Surgery?

When it is remembered that principles are to guide us in surgical practice and that success in applying these requires always discriminating judgment and a certain aptitude, it seems useless to create a division of surgery as a special department. But this artificial division has come about in some way and has gradually assumed a popular position without, it is feared, a good reason for its existence. To seek a proper definition of minor surgery, to point out, if possible, its boundary lines, to call attention to the misconceptions and dangers which may arise from regarding it as a separate branch of surgery—these appear to be pertinent objects.

One looks in vain for a definition of minor surgery which really defines. Where does minor surgery end and major surgery begin? If there is a major and a minor surgery, should there not be a superlative degree—a supreme surgery? Indeed, it appears that the only proper basis for distinction between a minor and a major surgical operation depends on the one who does it. A definition might be made as follows: *Minor surgery is that part of surgical practice which is done by the "minor surgeon."* The "major surgeon" also does what is included under minor surgery, though refusing to call it by that name; but the "minor surgeon" does not and should not do major surgery. Herein lies the danger. There is hardly a so-called minor operation which may not become a major one at any moment, and the

more "minor" the surgeon, the more "major" the operation will become before he is through with it. The experienced surgeon does not try to locate the line of demarcation.

Curettage, an operation for hemorrhoids, aspiration for empyema, and the open treatment of fractures and dislocations will be undertaken by those who would not think of performing an abdominal section, the resection of a rib, or the formal ligation of an artery. And yet, in each of the operations first mentioned, there is the possibility of having to do one of those operations last named. Equal skill is required for both these classes of operating, but in the latter there are elements of risk, immediate and remote, which deter the average man from attempting what are called major operations. It is sometimes a matter of "nerve," and "nerve" means simply knowing what you are doing. In surgery, familiarity breeds repose.

It is by no means contended that the general practitioner should not do surgery; it is even urged that he do more and more, so that he may become proficient in that which falls to his lot, and not shirk his responsibilities. He should, however, understand deeply that the study of surgical principles is his duty, that surgery is the same wherever it is needed, that none of it is minor, and that all of it is surgery. Let him tune his judgment to his conscience, realize his limitations (as everyone must), and do surgery, not minor surgery.—H. A. ROYSTER, *Surgery*, 1:286, 1937.

Book News

Christian Holmes: Man and Physician

By Martin Fischer, M.D., Professor of Physiology, University of Cincinnati College of Medicine. Charles C. Thomas, Springfield, Illinois. 1937.

Written by one who knew his subject intimately, loved and revered him, and can give expression to his thoughts in most beautiful manner and in the best of English diction, this book will give pleasure to the many friends of Christian Holmes during his lifetime and who still cherish his memory nearly two decades after his death. The physical makeup of the book is in keeping with the well known and approved style of the publisher, true artistry being foremost in its preparation. It is a work of art, one which will grace the bookshelf.

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The Ocular Fundus in Diagnosis and Treatment

By Donald T. Atkinson, M.D. Consulting Ophthalmologist to the Santa Rosa Infirmary and the Nix Hospital, San Antonio, Texas. 1937. Price, \$10.

This work outlines the general characteristics of the ocular fundus with their practical application in health and disease. It is invaluable to all who use the ophthalmoscope in diagnosis, to neurologists, obstetricians and surgeons as well as ophthalmologists. The book is unique in that the illustrations are wholly the work of the author. It embodies the fruits of observation and the study of fundus cases in office practice and in clinics, both at home and abroad, extending over a period of more than thirty years. This comprehensive, well organized material will be a distinct aid to the diagnosis of conditions revealed by the ophthalmoscope and the work will be found increasingly valuable as a source of ready reference.

Medical Greek and Latin At a Glance

By Walter R. Agard, Professor of Greek, University of Wisconsin. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, New York. 1937. Price, \$1.50.

This handbook is intended to meet the practical needs of medical students who are unacquainted with the greek language and who, even if they have received some training in latin, have little experience with latin scientific terms. It accomplishes what it sets out to do. Even the practitioner will find it a useful book and its size is so convenient that it can be kept near at hand for immediate use in case of need.

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Laboratory Manual of Physiological Chemistry

By D. Wright Wilson, Professor of Physiological Chemistry, University of Pennsylvania. Williams & Wilkins Company, Baltimore. 1937. Price, \$2.50.

A handy little teaching manual for the medical student with blank pages for making notes.

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Operations of Surgery

By R. P. Rowlands, Late Surgeon, and Philip Turner, Consulting Surgeon to Guy's Hospital, London. 8th Ed., Volume II, The Abdomen. William Wood & Company, Baltimore. 1937. Price, \$10.

Describing all operative procedures in step by step detail, with abundant illustrations, this work is an excellent guide to operative surgery. It is devoted entirely to operations in the abdomen. Volume I considered the remainder of the body. It is a very fine piece of work and highly commendable.

Source Book of Orthopedics

By Edgar M. Bick, M.D., Adjunct Orthopedic Surgeon, Hospital for Joint Diseases, etc. Williams & Wilkins Company, Baltimore, 1937.

This book deals with the facts which have stimulated and guided the growth of orthopedic surgery from ancient times to the present day. The development of practice is correlated with the discoveries of the basic medical sciences. It fairly bristles with references to the literature, the bibliography being appended to the discussion of individual topics rather than at the end of a chapter. It reads like a novel, holds the interest throughout and will prove a delight not only for the orthopedist but for all who are interested in medical history.

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Medical Urology

By Irving S. Kol, M.D., Attending Urologist Michael Reese Hospital. C. V. Mosby Company, St. Louis. 1937. Price, \$5.

The author presents his subject in a practical manner so that he who reads can make use of what he has read in his every day practice. It is based in large part on his personal experiences, but the opinions of other specialists in this field are not disregarded. Therefore, this is an exceedingly practical book for the medical student as well as for the practitioner. Many bibliographic references are cited.

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Handbook of Orthopedic Surgery

By Alfred Rives Shands, Jr., M.D., Associate Professor of Surgery (Orthopedics), Duke University School of Medicine. C. V. Mosby Company, St. Louis. 1937. Price, \$5.

The fundamental facts and principles of orthopedic surgery are presented concisely, yet in sufficient detail to convey to student and practitioner a well-rounded knowledge of the subject. The illustrations are clear and to the point,

the majority being original drawings made from specimens provided by the author. The subject matter is divided into twenty-four chapters in accordance with a report of the Committee on Undergraduate Instruction in Orthopedic Surgery of the American Orthopedic Association. Sixteen chapters are arranged according to pathology; seven according to anatomical region. Eponymic terms are avoided, first place being given to the description of the disease entity. Especially to be commended is the bibliography which is arranged according to regions as well as diseases. There is every evidence of careful selection of references.

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Physiology in Health and Disease

By Carl J. Wiggers, M.D., Professor of Physiology, Western Reserve University School of Medicine. 2d Ed. Lea & Febiger, Philadelphia, 1937. Price, \$9.

Many portions have been completely rewritten, new and better illustrations have been included, the index has been enlarged and the bibliography modernized. While the author has adhered to the fundamental principles and plans of the earlier edition, he has recast and amended a number of the physiological concepts to keep pace with the results of recent researches. The discussions of many topics which were treated but briefly in the first edition have been expanded, including the biophysical principles, special senses, neurohumoral agents, pain and pulmonary affections. The language has been clarified and the presentation simplified throughout. Clinical material has been used in the discussion of physiological principles and the facts and conceptions established by experiment are applied to the analyses of clinical conditions. Throughout, the revision has been based on the author's personal use of the book in his own classes and on the suggestions of colleagues, teachers, students and practitioners.

Clinical Laboratory Diagnosis

By Samuel A. Levinson, M.D., and Robert T. MacFate, Director and Assistant Director, respectively, of Laboratories, Research and Educational Hospitals, Chicago, and of the department of pathology and bacteriology and medicine, University of Illinois, College of Medicine. Lea & Febiger, Philadelphia. 1937. Price, \$9.50.

The student will here find presented data which will enable him to make a rapid review of the pertinent points of previous studies with a correlation of didactic matter and clinical diagnosis. Being based on a course of instruction which has been followed for a number of years, the authors have presented a most practical outline for the student to follow. Brief reviews are made of fundamental subjects as related to clinical diagnosis and pathologic findings are compared with the normal, thus the student is made to feel that clinical laboratory diagnosis, to be made correctly, must be based on thorough familiarity with the normal and that he must develop the ability of recognizing the abnormal at a glance. A very good book, although somewhat bulky—and expensive for the poor medical student.

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Textbook of Embryology

By Harvey E. Jordan, Ph.D., and James E. Kindred, M.D., Professor and Associate Professor, respectively, of Histology and Embryology in the University of Virginia. 3d Ed. D. Appleton-Century Company, New York. 1937. Price, \$6.50.

Every teacher of histology and embryology is familiar with this deservedly popular text which is based entirely on the work of the authors. Many of the numerous illustrations are originals. Changes in the text conform to the knowledge of today, although the original plan of the book has not been changed because of universal acceptance. This is a splendid book for the medical student.

Elements of Orthopedic Surgery

By N. Ross Smith, M.B., Ch.M., F.R.C.S., Orthopedic Surgeon, Cornelia Hospital, Poole. Demonstrator of Anatomy, University of Sydney, Australia.

This is a very well written, concise and meaty book; a very practical textbook for all those who are in contact with persons who have a physical defect. Common conditions treated by orthopedic methods are described, but rarer affections are omitted or merely mentioned. Essential steps of operations are indicated but details needed only by the operating surgeon are omitted. The mechanical principles in the treatment of fractures are considered so that a sound understanding of the reasons for methods may be acquired readily. A short statement is made of the modern organization of cripple welfare work, appreciation of the need for which is important for all who take part in the practice of orthopedics.

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Textbook of Mental Deficiency

By A. F. Tredgold, M.D., Lecturer on Mental Deficiency, University of London, England. 6th Ed. William Wood & Company, Baltimore. 1937. Price, \$7.50.

This book has proven indispensable to those who wish to have authoritative information and reliable opinions and judgments on mental deficiency. It is an encyclopedia on mental deficiency. It is well illustrated.

* *

Brief Outline of Modern Treatment of Fractures

By H. Waldo Spiers, M.D., Professor of Orthopedic and Fracture Surgery, College of Medical Evangelists. 2nd Ed. William Wood & Company, Baltimore. 1937. Price, \$2.

A brief, lucid text and simple drawings which make clear the fundamentals of bone surgery and the high spots of their practical application in a most instructive manner. The diagnosis is made

easy and only accepted methods of treatment are included. The student will find this excellent book of incalculable value to him and the dull finish paper, and good type, will be appreciated in fullest measure. Every student should have a copy of this book. The price is within his reach.

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Legal Medicine and Toxicology

By Thomas A. Gonzales, M.D., Morgan Vance, M.D., and Milton Helpern, M.D., respectively Associate and Assistant Professors of Forensic Medicine, New York University College of Medicine and assistant medical examiners of the City of New York. D. Appleton-Century Company, New York. 1937.

Anything coming from the pens of three men of acknowledged authority, as are the authors, is worthy of careful consideration and cannot be otherwise than valuable. The authors' teaching experience is apparent in the selection and preparation of the text. The section on legal medicine is concerned with the principal pathologic conditions encountered in cases of forensic importance, special technical processes used in investigation and medical jurisprudence or that part of the law which deals with the practice of the physician. No attempt is made to furnish an authoritative legal guide for doctors who are faced with cases involving fine points of law. The routine work of medical examiners, coroner's physicians or similar public officials is discussed in detail. Special technical processes used in medicolegal investigations are described at some length. The toxicological part of the text is presented from the point of view of the physician and the pathologist. This is easily an authoritative work on legal medicine and toxicology, one which the student will find not only interesting and instructive but easy to read and grasp. It is based on a large personal experience and is very well illustrated. In the appendix is set forth much valuable statistical material.

Electrocardiography

By Chauncey C. Maher, M.D., Assistant Professor of Medicine, Northwestern University Medical School. 2nd Ed. William Wood & Company, Baltimore. 1937. Price, \$4.75.

Electrocardiography is valuable as an additional means of diagnosis in cases of cardiovascular disease, but only when it is interpreted as a part of the clinical picture. Students always have difficulty in this respect. This book aims to assist in making the interpretation. It is brief and concise and well illustrated; diagrams and appropriate electrocardiograms are very informative. In each instance the clinical diagnosis is given and the interpretation of the electrogram. The book is a valuable addition to the student's library.

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Surgical Anatomy

By Grant Massie, M.B., F.R.C.S., Lecturer in Operative Surgery, Guy's Hospital Medical School, London, England. 3rd Ed. Lea & Febiger, Philadelphia. 1937. Price, \$6.50.

This work includes in a small compass a mass of information of special use to the senior student. It is written on a regional basis, short anatomical descriptions being supplemented by information on diagnostic and operative procedure. Every effort has been made to strike a balance between the anatomical and the surgical matter. The number of illustrations has been augmented and the text slightly enlarged. This edition presents all of the essential facts of anatomy in conjunction with their clinical application and reflects the anatomical and surgical teaching for which Guy's Hospital is famous.

Since the last edition of this work appeared, there has been yet another change in anatomical nomenclature, and the situation from the viewpoint of the teacher has become even more confused. In these circumstances, it has appeared wise to the author to retain the old nomenclature, giving as hitherto the B. N. A. terms in brackets and using

such terms description of positions as are obviously better than their old equivalents. It is believed that this compromise best serves the needs of the student and practitioner. In typography, illustrations and format this book is unusually attractive, and its text is written in a style that is commendably clear and easily readable.

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*Basis of Clinical Neurology:
Anatomy and Physiology of the
Nervous System in Their Application
to Clinical Neurology*

By Samuel Brock, M.D., Associate Professor of Neurology, New York University, College of Medicine. William Wood & Company, Baltimore. 1937. Price, \$4.75.

This book gives the information needed for a thorough understanding of diseases of the nervous system, not always an easy or simple matter. Neuro-anatomy and neurophysiology are presented from the standpoint of clinical usefulness. The book is a splendid introduction to a difficult subject. It is easy to read and easy to understand, two important desiderata to the bewildered medical student.

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Treatment of Diabetes Mellitus

By Elliott P. Joslin, M.D., Clinical Professor of Medicine, Harvard Medical School, with the cooperation of Howard F. Root, M.D., Instructor in Medicine, Harvard Medical School, Priscilla White, M.D., Instructor in Pediatrics, Tufts College Medical School, and Alexander Marble, M.D., Assistant in Medicine, Harvard Medical School. 6th Ed. Lea & Febiger, Philadelphia. 1937. Price, \$7.

The discovery of protamine insulin

marks the beginning of another and better era for the diabetic. The author and his associates record their experience with more than twelve hundred cases in which protamine insulin has been used. They are convinced that protamine insulin offers unsuspected possibilities for treating diabetic patients. New factors in the treatment of diabetes have been multiplying with extraordinary rapidity. They are here summarized, and this edition records the vast and recent progress that has been made.

A new standard of efficiency of treatment is introduced by charts showing the lessened mortality of Dr. Joslin's patients who are physicians, compared with that of all of his patients, indicating that that diabetic lives longest who knows the most about his disease.

Dr. Root concentrates on the surgical diabetic, the cardiovascular diabetic and the diseases of the blood. Dr. White deals chiefly with the important topics of children, pregnancy and heredity, while Dr. Marble gives particular attention to non-diabetic glycosuria, to early detection, prevention and diagnosis of diabetes, and to the chemical and physiological background of the disease.

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Diseases of the Throat, Nose and Ear

By I. Simpson Hall, M.B., Surgeon to the Royal Infirmary, Edinburgh. William Wood & Company, Baltimore. 1937. Price, \$4.

This is essentially a textbook for the student. The unusual and complicated conditions are not mentioned, but the commoner complaints are discussed fully. Particular stress is laid on minor technical procedures. A brief anatomical description precedes each section as a refresher. The Appendix, though brief, bristles with good advice.

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